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AUTHOR Cook, Paul F.; Dahl, Peter R.
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ABSTRACT

The monograph synthesizes findings of the Vocational Training and Placement of the Severely Handicapped Project (VOTAP) and offers recommendations for further research and development. Chapter 1 presents the theoretical model that describes the dimensions upon which the task of developing research and development recommendations could be approached independently from the recommendations of practitioners in the field. Chapter 2 describes the needs and recommendations of program staff as determined by the VOTAP survey and by the members of the VOTAP Advisory Panel. Recommendations that follow in Chapters 3, 4, 5, and 6 are developed using both approaches. The following areas are covered (sample subareas in parentheses): educational programing (increasing prevocational experiences and work adjustment skills in order to help handicapped persons succeed in employment); occupational independence (fostering positive public attitudes toward the handicapped in the work place); socioemotional adjustment (developing self esteem accurate self appraisal, and realistic vocational and career aspiration); and physical accommodations (increasing the availability of assistive devices). Chapter 7 summarizes the recommendations and emphasizes those that reflect the most pressing concerns. (SBH)

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VOCATIONAL TRAINING AND PLACEMENT OF THE SEVERELY HANDICAPPED

RESEARCH AND DEVELOPMENT RECOMMENDATIONS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Paul F. Cook
Peter R. Dahl

Judith Appleby
Jane Spangler
Editors

April 1977

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The members of the National Advisory Panel were most helpful in their advice, suggestions, and criticisms.

National Advisory Panel

Everett Barton
Ralph Bohn
Gordon Christian
M. Harry Jennison, M.D.
Merle Karnes
Russell Kirbey
Herbert Kramer
Charles Richman
Norman Silberberg
David Taxis
Elsie Vickery
Ernest Willenberg
Tom Williamson
William E. Johnston, Jr., Ex-Officio Member

Internal AIR Advisors

Albert Chalupsky
Robert Weisgerber

Project Staff

John E. Bowers and James A. Dunn, Principal Investigators
Paul F. Cook and B. Gordon Funk, Project Directors

Sibyl Anderson
Judith A. Appleby
John J. Appleby
Melanie Austin
D. Carol Bain
Nancy A. Christensen
Peter R. Dahl
Barbara Dodson
Phyllis A. Dubois
Margaret A. Gale
Susan Hanson
Carol B. Kaplan
Deborah Plumley
Jane Spangler
Debra Thomason
Irene Yurash

Preface

THE NEED

The national conscience is becoming more sensitive to the fact that many segments of American society do not receive the benefits to which they are entitled. This heightened sensitivity has led to expanded efforts to help the handicapped participate in the social, economic, and cultural mainstream of this society.

Legislation and court decisions are slowly providing the handicapped with their full civil rights as guaranteed by the Constitution, including full access to education and vocational training. However, as these legal steps are taken, the public must acknowledge the need of all handicapped people to be treated as full-fledged human beings--no longer to be unnecessarily institutionalized, regarded as second-class citizens, or denied the full benefits of American life.

In the last decade, much progress has been made in preparing the handicapped for gainful employment. Two significant steps taken during this time were the specific funding of vocational training for the handicapped in the Vocational Education Amendments of 1968 and 1976. Supported by this legislation, a number of innovative and high-quality programs for the handicapped are now operating in local school districts and other agencies.

Another significant step in improving legislation was the passage in 1975 of the Education for All Handicapped Children Act (Public Law 94-142). This bill calls for massive expansion in authorized levels of the basic state grants program. The act has three major aspects: (1) it has no expiration date; (2) it makes a specific commitment to all handicapped children; and (3) it states that education must be extended to handicapped children as their fundamental right. The following are more specific implications of this legislation.

- Individualized educational programming is an essential component of appropriate education designed to meet the unique needs of handicapped children.
- To the maximum extent appropriate, handicapped children should receive education with children who are not handicapped; in other words, special classes, separate schooling, or any other removal of the handicapped from the regular educational environment should be reduced as much as possible.
- Adequate testing should be provided to ensure that student placement is not racially or culturally discriminatory. Testing will be conducted in the child's native language or mode of communication unless it is clearly not feasible to do so.

Adherence to the requirements of these implications will help eliminate the barriers currently facing severely handicapped persons as they try to find employment.

While progress is being made in helping those classified as handicapped to maximize their potential for self-fulfillment and for useful and meaningful participation in society, much more needs to be done to help the severely handicapped. "Severely handicapped" persons are those who because of the severity of their problems need educational, social, psychological, and medical services beyond those offered by traditional and special education programs. Severely handicapped persons are seriously emotionally disturbed, profoundly or severely mentally retarded, or multiply handicapped. Also in this category are persons with severe language deprivations, perceptual-cognitive deprivations, a fragile physiological condition, and/or a number of abnormal behaviors. Abnormal behaviors may include a failure to attend to pronounced social stimuli, self-mutilation, durable and intense temper tantrums, and the absence of rudimentary verbal control. The impairment of the severely handicapped is considered to be relatively permanent (U.S. Office of Education, Bureau of Education for the Handicapped, 1975).

THE PROJECT

The Bureau of Education for the Handicapped (BEH) of the U.S. Office of Education has outlined two principal objectives for improving the fortunes of the severely handicapped: first, ". . . to enable the most severely handicapped children and youth to become as independent as possible, thereby reducing their requirement for institutional care and providing opportunity for self-development;" second, ". . . to stimulate the initiation, expansion, and improvement of vocational education programs for the handicapped throughout the country in order to assure that every handicapped youth will have career education training which is relevant to the job market, meaningful to his career aspirations, and realistic to his fullest potential."

In July 1975 BEH contracted with the American Institutes for Research to investigate and assess the vocational training and employment possibilities of persons with severe permanent handicaps. The AIR project is called Vocational Training and Placement of the Severely Handicapped (VOTAP), and its purpose is to provide information that will help to increase the vocational education and employment opportunities for such individuals.

A National Advisory Panel was formed to provide policy orientation and technical direction to the project, and to obtain expert assistance concerning the general objectives of the project, the clientele it addresses, current and prospective training and placement methodologies, and products. The panelists were drawn from the vocational education, special education, and rehabilitation communities. The last section of this preface consists of a list of panel members.

Early in the project it became desirable to clarify that the focus of the VOTAP project was to be on vocational or occupational education rather than career education even though the BEH objective cited above implied that career education aspects should be considered. Vocational education and training in VOTAP was conceived of as education or training related to the occupational development of the severely handicapped, age 14 and beyond. This definition went beyond "vocational education" in the narrow sense of the term, which implies skills training with a trade orientation.

Although the programs to be studied by VOTAP were for students 14 years and up, it was apparent that severely handicapped persons are especially in need

of occupational preparation before age 14, when prevocational training usually begins. For this reason, it was decided to include recommendations that may extend research and development activities down into the grade school and preschool years, but no attempt was made to deal with career education concerns in a comprehensive manner.

The specific objectives of the VOTAP project were to determine the following:

- What are the potential vocations for severely handicapped youth and adults?
- What vocational training programs are available for the severely handicapped?
- Do effective job placement programs exist? If so, where, and what services do they provide?
- What research and development activities might contribute to improved career/vocational education opportunities for the severely handicapped?

Project activities were to be conducted throughout with an eye to the dissemination and use of the resulting products. Appropriate education professionals were to be kept aware of the project and their assistance solicited as needed. The products resulting from the project were to be packaged in a form that facilitated their use.

The VOTAP project included five major activities. The first task was the preparation of an annotated bibliography of materials concerned with job placement of the severely handicapped.

The second task was to survey training and placement programs, to obtain descriptive data about them, and to identify particularly innovative or effective practices. Programs were selected from nominations according to geographic location, size, type of institution (public or private), and handicapping conditions of the clientele. Of the 333 programs surveyed, 169 programs responded. Guidelines for recognizing effective, innovative practices were drafted by the VOTAP project staff and were then reviewed by VOTAP's 14-member National Advisory Panel.

The third task was to prepare a handbook entitled Vocational Opportunities. This handbook identifies and discusses major barriers preventing the severely handicapped from obtaining vocational training and employment, and includes a description of strategies that can be used to surmount these barriers. The handbook contains lists of jobs obtained from the VOTAP survey that severely handicapped workers presently hold in sheltered workshops and competitive employment; it also contains suggestions as to how potential jobs may be opened to handicapped persons by managing relevant barriers.

The fourth task was to prepare a second handbook entitled Training Programs and Placement Services. This handbook contains one- to three-page descriptions of 152 programs. Innovative or effective practices are highlighted.

These practices were identified from survey returns and reviewed by using criteria drafted by the AIR research staff and critiqued by VOTAP's National Advisory Panel and by BEH.

The last major task was to prepare a monograph entitled Research and Development Recommendations. This monograph synthesizes the project findings and offers recommendations for further research and development in the area of vocational training and placement of the severely handicapped. These recommendations are based on needs identified during the course of the project and on suggestions made by the National Advisory Panel.

NATIONAL ADVISORY PANEL

Dr. Everett Barton
Facilities Specialist
California Department of Rehabilitation
Sacramento, California

Dr. Ralph Bohn
Dean of Continuing Education
San Jose State University
San Jose, California

Mr. Gordon Christian
OJT Coordinator
National Association for Retarded Citizens
Burlingame, California

M. Harry Jennison, M.D.
Executive and Medical Director
Children's Hospital at Stanford
Palo Alto, California

Dr. Merle Karnes
Director, Colonel Wolfe School
Professor of Special Education
Institute for Research in Exceptional Children
University of Illinois at Urbana-Champaign

Mr. Russell Kirbey
Executive Director
Braille Institute of America
Los Angeles, California

Dr. Herbert J. Kramer
Director of Communications
Joseph P. Kennedy, Jr. Foundation
Hartford, Connecticut

Mr. Charles Richman
Director of Product Development
International Association of Rehabilitation Facilities
Washington, D.C.

Dr. Norman Silberberg
Director, Research and Education Division
Sister Kenny Institute
Minneapolis, Minnesota

Dr. David Taxis
Assistant Director for Curriculum and Instruction
Administrator of Vocational Education
Los Angeles County Schools
Downey, California

Mrs. Elsie Vickery
Director
Poplar Center
San Mateo, California

Dr. Ernest Willenberg
Assistant Superintendent for Special Education
Los Angeles City Unified School District
Los Angeles, California

Mr. Tom Williamson
Director
Hope Adult Development Center
Della Maggiore Center for the Retarded
San Jose, California

Dr. William E. Johnston, Jr. (Ex-Officio Member)
Education Program Specialist
Research Project Branch
Division of Innovation and Development
Bureau of Education for the Handicapped
HEW - Office of Education
Washington, D.C.

Chapter 1 Research and Development Model

PURPOSE

The purpose of this book is to identify and conceptualize problem areas in vocational education for the severely handicapped which will require special attention by research and development specialists over the years ahead. A system was developed to conceptualize the problems by categorizing them so that long-range, systematic plans can be made. These are macroproblem areas, rather than specific needs, each of which could become a whole program of research over time. The recommendations in this book were developed for the Bureau of Education for the Handicapped, but they will also be useful to others in research for this population.

This book approaches the task of developing research and development recommendations from two points of view. Chapter 1 presents a theoretical model that describes the dimensions upon which the task could be approached independently from the recommendations of practitioners in the field. Chapter 2, on the other hand, describes the needs and recommendations of program staff as determined by the VOTAP survey and by the members of the VOTAP Advisory Panel. The recommendations that follow in Chapters 3, 4, 5, and 6 are developed using both approaches. The research questions and recommendations in Chapter 3-6 are not exhaustive, but they serve as examples. Experts in the specific topic areas should be used to generate additional questions and concerns. Chapter 7 summarizes the recommendations and emphasizes those that reflect the most pressing concerns.

GUIDELINES FOR A RESEARCH PLAN

The following guidelines were used in developing the research and development plan. Their purpose was to describe an ideal set of characteristics that the writers could attempt to realize.

(1) The recommendations should describe a balanced program of investment. The plan should address fundamental issues from a wide range of topic areas related to vocational training and placement of the severely handicapped, as well as the immediate and pressing needs of practitioners.

(2) The plan should be heuristic. The research plan should be as useful as possible in generating research ideas. If it contains a model that is interesting but does not generate research, it will not fulfill one of its major requirements. The research model should be stated in such a way that it is possible to analyze and address problems from a variety of approaches.

(3) The plan should have a theoretical as well as empirical approach to problem analysis. The research and development plan should approach the task of identifying research recommendations from both a theoretical and empirical basis. A theoretical approach allows problems to be analyzed deductively from broad principles to ensure comprehensiveness, while an empirical analysis of critical problems identified by practitioners in the field is an inductive process that ensures the plan will be thorough and oriented to real problems.

THE THEORETICAL MODEL

The theoretical model (Figure 1) shows the dimensions that provide the structure for the recommendations made throughout this book. These dimensions are Areas of Enterprise, Target Groups, and Activities. A chapter is devoted to each Area of Enterprise and a "slice" of the model appears at the front of each of these chapters to show which recommendations apply most directly to each cell defined by the Groups X Activities matrix for that Area of Enterprise. This structure and the recommendations that fit within it are designed to identify activities that BEH could undertake or to which it could contribute substantially in cooperation with other agencies. In a broader context, three areas of activity can be identified for serving the handicapped and are listed below. As noted in the discussions, BEH can have its primary impact in the second and third areas.

(1) Prevention is the first area. A number of research and development problems are related to the prevention of severe handicaps. Obviously, the first line of defense in dealing with handicaps is to prevent them in the first place; considerable investment should be placed in learning more about methods of prevention. This area is largely the responsibility of medicine and not education. Therefore, BEH may not have a priority concern in this area.

(2) The second line of defense in dealing with handicapping conditions, once prevention has failed, is the strategy of attempting to arrest the development of the handicap to the fullest extent possible. Medicine, rehabilitation, and education all have an interest in this area.

(3) The third area of activity is to minimize the effects of handicapping conditions once they have occurred and to increase involvement and independence through compensatory techniques and aids. Many of the program components identified in the VOTAP project from program descriptions and review of the literature deal with this priority. BEH should have a priority concern in this area.

Areas of Enterprise

The first major dimension in the conceptual model is Areas of Enterprise. These are areas in which the severely handicapped face problems in obtaining vocational training and job placement and in maintaining themselves on the job. Four Areas of Enterprise are identified:

(1) Educational programming is the first of these areas. It includes developing appropriate curricula, developing instructional methods, developing staff skills, organizing programming at the community level, smoothing the transition to the world of work, and helping handicapped individuals to formulate goals and obtain training for career preparation.

(2) Occupational independence includes helping the handicapped individual to obtain placement on the job and maintain progress once a job and career have been started. This area also includes developing staff to help in establishing occupational independence, to perform job reengineering, and to maintain social work programs.

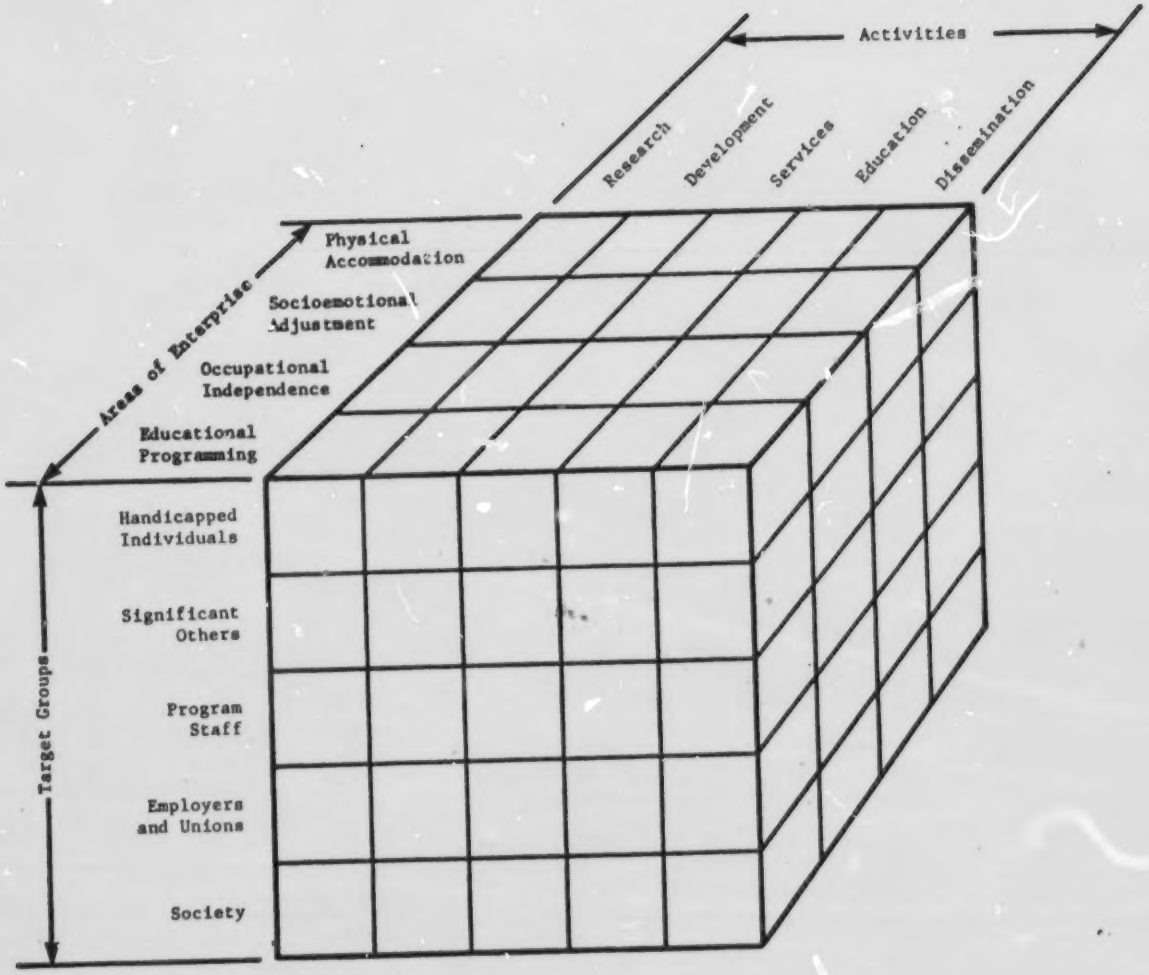

Figure 1. Theoretical dimensions for research and development recommendations.

(3) Socioemotional adjustment is an area that encompasses a number of research and development needs. These include the development of basic social skills, attitudes of self-acceptance and self-esteem, accurate self-perception, realistic aspirations, the ability to utilize healthy assistance from others, and skills in gaining societal acceptance.

(4) Physical accommodation includes the design, provision, and maintenance of prostheses, orthoses, and other assistive devices, as well as increasing the accessibility of housing, work places, and transportation systems.

Target Groups

This is the second major dimension of the conceptual model. It is divided into five areas:

(1) Handicapped individuals is the first target group. A variety of research projects can help the handicapped individual.

(2) Significant others is the second target group. Persons in this group are less easily identified, though they generally include family, friends, employers, and professionals who work with the handicapped.

(3) Staff conducting a program of services to the handicapped is the third target group to which research should be directed. This group includes persons working in public and private institutions, programs, or consortiums designed to habilitate or rehabilitate the handicapped, or to provide vocational training, job placement, or employment. Sheltered employment is considered a part of this area.

(4) Employers and unions is the fourth target group, which includes persons in business, industry, professions, and labor unions who control jobs in competitive employment.

(5) Society is the last target group. It constitutes the system within which the other groups must operate.

Activities

The third major dimension of the conceptual model is Activities. This dimension describes the methods that lead to solutions to various problems. Activities is divided into five areas:

(1) Research is the first area and refers to both basic and developmental activities. Basic research is primarily directed to the development and evaluation of theory in which immediate applicability of findings is not a major concern. This type of research activity is primarily concerned with the discovery of knowledge. Developmental research, on the other hand, is undertaken to bring about specific improvements in practices in a particular setting. It includes studies that compare the effectiveness of various principles in meeting certain goals, that solve practical problems, or that evaluate programming methods.

(2) Product and materials development is the second area. This category of activities focuses on the development of appropriate products or materials useful in programming. Such materials may include curriculum materials for student use, teacher guides, and audiovisual teaching aids and devices.

(3) Services is the third area. Often the solution to a problem facing the vocational training or occupational placement and maintenance of a handicapped person in a job does not require basic or developmental research or materials development but requires development of basic services. These activities include the development of evaluation devices to determine educational and vocational needs, the development of programming services in new situations that have been demonstrated to be effective in other settings, or the placement of handicapped personnel on the job and assistance in maintaining and enhancing their occupational careers.

(4) Evaluation is the fourth area. It takes place at many levels. It might be an evaluation of an individual's capabilities, training needs, occupational readiness, or performance on the job. It might involve the assessment of a program of services to clarify desired outcomes and to determine the effectiveness of certain inputs and processes undertaken in order to meet program outcomes or evaluate program impact. Or evaluation might involve large-scale studies to determine needs in the areas of research, development, or program services.

(5) Dissemination is the final area under Activities. It is the process of transmitting information about an idea, program, or product that creates awareness or interest in the idea, program, or product. This information enables potential users to implement a practice on a trial basis. Dissemination is an appropriate strategy when a problem exists and tested solutions to the problem have already been researched and developed. If the solutions are effective, then the task is one of implementing that solution in a new setting. Examples of dissemination activities are circulation of newsletters and reports; the establishment of dissemination centers; the establishment of central records systems that serve as a clearinghouse for new ideas, programs, or products; the development and distribution of program information packages (PIPs); and provision of technical assistance in conducting workshops and providing consulting services to enable practices to be established in new settings.

Chapter 2 Field Recommendations

INTRODUCTION

One of the guidelines established for research and development recommendations in Chapter 1 was that recommendations should be generated from an empirical as well as a theoretical approach to ensure comprehensiveness. This chapter describes how the needs and recommendations from the field were analyzed and grouped.

APPROACH TO EMPIRICAL ANALYSIS

In the empirical analysis, recommendations and needs were gathered from three sources. The first source was the literature surveyed over the course of the VOTAP project. One of the first major tasks of the project was a computer search of literature relevant to the problem area. An annotated bibliography was prepared, and these annotations were examined to determine the needs they were addressing.

A second source of information was the VOTAP Advisory Panel. This panel of 14 experts reviewed VOTAP products and provided general guidance. In July of 1976, the Advisory Panel met in San Francisco for a two-day conference with the specific objective of generating research needs and recommendations. During the meeting the group analyzed appropriate vocational education and placement objectives for the severely handicapped, determined those barriers that prevented the objectives from being met, developed strategies to surmount the barriers, and made specific recommendations.

A third source of information for determining research and development needs was the VOTAP survey instruments. These instruments were mailed to 330 programs in a variety of settings serving the vocational training and job placement needs of the VOTAP population. The settings included rehabilitation facilities, sheltered workshops, educational institutions, and other types of institutions in both the public and private sectors. Programs were also sampled by grade level (secondary and postsecondary). The sample was drawn from both rural and urban areas in the 10 geographical regions utilized by the U.S. Office of Education. Questions on these forms included the following:

(1) In what training or job areas do you see potential for innovations in training the severely handicapped?

(2) What new or innovative techniques do you feel will broaden the range of skills in which the severely handicapped can be trained?

(3) What do you consider to be the most innovative or successful aspects of your training program?

(4) Please identify two or three aspects of your placement activities that you feel to be particularly effective or innovative.

In addition, a needs section in the two forms asked respondents to rate 26 areas in which they felt improvement was most needed for their programs to function effectively. A variety of needs was covered in these sections.

The information from these sources was analyzed in the following manner. First, a large sample of needs and recommendations was collected. As the information was studied, each specific need or recommendation was written down and treated as a discrete item of data. The next task was to categorize the data into an overall framework. Categories were generated from the empirical results themselves, rather than attempting to fit them into a preconceived theoretical model. The empirically derived needs and recommendations seemed to fall into three major problem areas: societal conditions that affect vocational training and placement; career preparation; and job placement and maintenance. Frequent problems within the three major areas were then identified as shown below.

1. Societal Conditions that Affect Vocational Training and Placement

   1.1 Public Ignorance, Unfavorable Attitudes, and Problems of the Handicapped in Obtaining Information about Services

      Problem 1. Members of the public are generally ill-informed about the nature of handicapping conditions and the capabilities of handicapped people.

      Problem 2. Societal attitudes and values often prevent acceptance of the handicapped as workers.

      Problem 3. Handicapped persons often lack information about the services and opportunities available to them and/or do not know how to avail themselves of such services.

   1.2 Professional and Social Support Services; Parental Involvement and Support

      Problem 1. Support services such as medical assistance, advocacy, and other social services are often inadequate and/or dispersed in agencies whose efforts are not coordinated.

      Problem 2. Parents often have inappropriate expectations and concerns about their children and their children's occupational future.

      Problem 3. Parents are often not involved in providing services and parental participation is often less effective than it should be.

      Problem 4. Legislation authorizing payment for supporting services is not available.

   1.3 Transportation and Housing

      Problem 1. Transportation vehicles, stations, and associated facilities often are difficult or impossible for physically handicapped people to use.

Problem 2. Housing specifically designed for the needs of the handicapped is usually not available.

1.4 Assistive Devices

Problem 1. Information about assistive devices available to the handicapped is often inadequate.

Problem 2. Assistive devices are often too expensive to be obtained by handicapped persons.

Problem 3. Assistive devices do not exist to meet some needs.

2. Career Preparation

2.1 Prevocational Training

Problem 1. Severely handicapped persons are often insufficiently skilled in independent living and self-care.

Problem 2. Prevocational and work adjustment skills of the handicapped are often inadequate.

Problem 3. Self-esteem of handicapped persons is often low, and this appears to hinder success on the job.

Problem 4. Insufficient career information and decision-making experiences cause difficulty for the handicapped in making career decisions.

Problem 5. Prevocational evaluation methods are not adequate.

2.2 Vocational Training--Areas in Which Training Is Offered

Problem 1. The range of jobs for which training programs prepare clients is often too limited.

Problem 2. Training programs often do not adequately consider the requirements of jobs available in the surrounding community in setting up their curricula.

2.3 Vocational Training--Staffing, Training Strategies, and Instructional Techniques

Problem 1. Training and placement program staff lack broad experience, particularly business and industrial experience.

Problem 2. Existing evaluation procedures are not adequate to identify the most appropriate training programs for an individual.

Problem 3. The advantages, disadvantages, and models for implementation of mainstreaming programs have not been adequately investigated.

Problem 4. Programs often are unable to take advantage of the most sophisticated training procedures available.

Problem 5. Even when they possess the skills to do a job, handicapped persons often lack the necessary support to help them make the transition from dependence to gainful employment.

3. Job Placement and Maintenance

3.1 Incentives and Marketing Strategies

Problem 1. Employers hesitate to hire handicapped persons, expecting that they will not be efficient, productive workers who can work safely on the job.

Problem 2. Employers do not have sufficient incentives to hire the handicapped.

3.2 Locating a Suitable Job

Problem 1. Methods for matching the potential skills of handicapped persons with suitable jobs are inadequate.

Problem 2. The homebound handicapped worker is isolated from competitive employment.

Problem 3. The job market for the severely handicapped is not well-developed.

Problem 4. Transportation and access to places of employment are often difficult for the severely handicapped.

3.3 Modifying the Work Place

Problem 1. The work place is not designed to accommodate the requirements of many handicapped persons.

Problem 2. Architectural barriers in the work place prevent the handicapped from working.

3.4 Getting Along on the Job

Problem 1. Attitudes of nonhandicapped employees are often a barrier to the handicapped in obtaining and keeping a job.

Problem 2. Handicapped workers often lack the social skills necessary to get along with other employees.

Problem 3. Many handicapped workers have difficulty in making the transition to competitive employment.

Problem 4. Daily transportation and access to buildings can be excessively expensive and wearing on morale.

Chapter 3 Educational Programming

INTRODUCTION

Recommendations in this chapter are concerned with educational programming activities that prepare the severely handicapped for work. "Programming" here refers to any planned sequence of activities, formalized in the community, that are designed to enhance the vocational training, occupational placement, and occupational maintenance of severely handicapped persons in the working world. It may refer to a community system of services for handicapped persons, as well as to the specific activities undertaken by a single institution.

In preparing persons for work, the concern is with such activities as assessing needs, program design and development, evaluation of programs and practices, evaluation of handicapped individuals, prevocational and vocational training, relevant career education, instructional methods and materials, and transition to the world of work.

Major Topics addressed in this chapter are as follows:

3.1 Increasing information about services and opportunities available to the handicapped and their parents or guardians

3.2 Coordinating services and encouraging the collaboration of all potential community resource personnel

3.3 Improving evaluation of handicapped students on a variety of dimensions

3.4 Instituting effective methods for program evaluation

3.5 Increasing prevocational experience and work adjustment skills to help handicapped persons succeed in employment

3.6 Increasing the emphasis on training competencies relevant both to the goals of handicapped students and to the job market

3.7 Developing appropriate curricula and increasing the efficiency and effectiveness of instructional methods

3.8 Obtaining sufficient career information, awareness, and experience to make appropriate career decisions

3.9 Investigating the effects of mainstreaming

3.10 Improving the level of appropriate skills or background of staff relative to programming objectives

3.11 Smoothing the transition from programs or services into the work environment

Figure 2 is a categorization of recommendations (Groups X Activities) for Educational Programming according to the theoretical model discussed in Chapter 1. The numbers in each cell represent specific recommendations presented in Chapter 3. For example, 3.5 is a major topic--Increasing Prevocational Experience and Work Adjustment Skills in Order to Help Handicapped Persons Succeed in Employment. The number in parentheses (1) indicates that this is the first recommendation within the major topic. Similar figures are found for Chapters 4, 5, and 6. These figures will enable the reader to see at a glance which activities and which groups require attention within each Area of Enterprise.

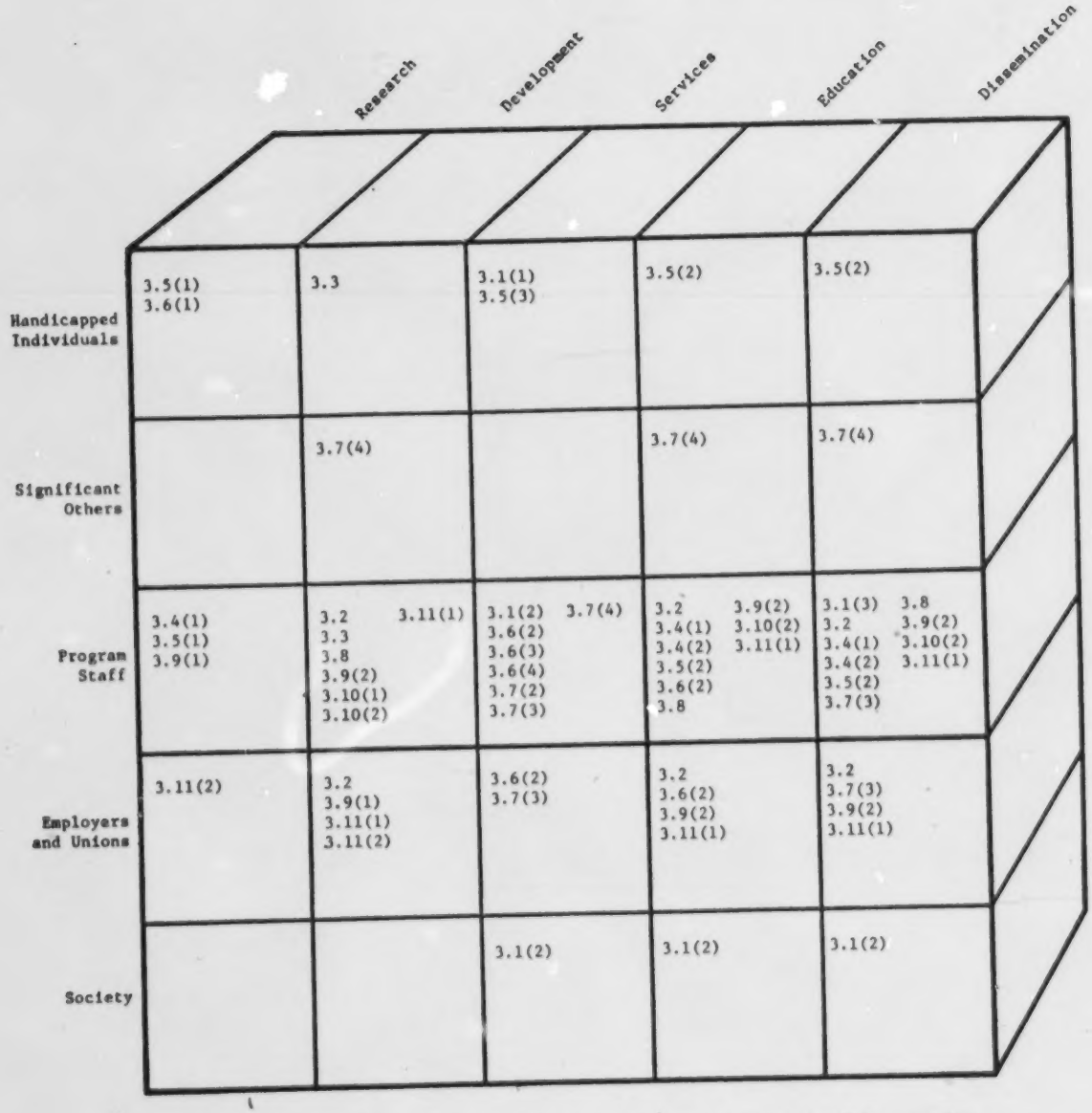

Figure 2. Categorization of recommendations for Educational Programming.

Topic 3.1 INCREASING INFORMATION ABOUT SERVICES AND OPPORTUNITIES AVAILABLE TO THE SEVERELY HANDICAPPED AND THEIR PARENTS OR GUARDIANS

Handicapped persons often lack information about services and opportunities available to them and/or about how to utilize services that are available. It is often hard for handicapped persons or their guardians to gain access to locally available sources of information and assistance. This is partly due to poorly integrated information networks or lack of support for such services. Handicapped persons and their guardians often have insufficient information about the range of career possibilities open to the handicapped and how to manage the barriers being faced by the individual.

RECOMMENDED ACTIVITIES

(1) *Services*

Outreach systems, ombudsman. Information systems are required which assure that all handicapped persons are identified and are able to utilize available services. In addition to identifying handicapped persons, outreach systems should provide information and training if required, in locating services. These systems should provide counseling to help the handicapped person explore potential resources in the community and provide advocacy for the handicapped or their guardians as contact is made with the available resources. Such services might include the development of an ombudsman or advocate service at the local level to allow the individual access to all available resources, information, and assistance. The role of such an advocate should be investigated. At what point in the life of a handicapped person should the advocate be active? To what extent is professional training required to perform an effective ombudsman role? Who are the most likely persons to be effective advocates? And under what circumstances is advocacy beneficial and when is it a nonproductive role?

> Example activity. Locate ongoing ombudsman services by survey or by nomination. Determine the roles being played by the ombudsman, and evaluate the outcomes of these roles for the handicapped person and his or her guardian. Publish the results in professional journals. The specific program needs to which the ombudsman is responding should be explicit so that "how to" packages may be prepared for dissemination to other programs with similar needs.

(2) *Services, Evaluation, Dissemination*

Mass media, exemplary programs. Methods for working with the mass media to disseminate information about resources should be investigated. Studies should be undertaken to determine the most effective media and techniques, under what conditions, and for what services. Exemplary programs should be

identified and information about programs and practices disseminated so that other programs can utilize these methods.

Example activity. Advertise regularly in local newspapers to describe available resources in the community. Provide appropriate technical assistance if necessary. Compare with TV spots of similar content. By survey, assess the impact of advertising; give particular attention to breadth of coverage and public awareness.

(3) *Dissemination*

Clearinghouses. Consideration should be given to the support of national information exchange systems or clearinghouses that collect, catalog, and retrieve information about services and that interact with the user. These dissemination systems should not only emphasize comprehensive storage of information but should develop innovative methods of enabling the handicapped individual to gain access to the information according to his or her personal interests and the particular barriers faced as a result of the handicapping condition. These systems should enable the individual to develop alternative avenues of appropriate help. Computerized career information systems that relate career opportunities with interests, attitudes, and personal preferences, and in turn with programs, services, advocates, etc., may be an appropriate pattern for such new systems.

The usefulness of establishing such dissemination systems at the local or regional level versus the national level should be investigated. These systems should focus on providing a service to the handicapped person and his or her parent or guardian rather than to rehabilitation programs.

Example activity. Develop computerized information systems at the regional BEH Learning Resource Centers to enable handicapped individuals or their advocates to increase appropriate educational, training, and placement service alternatives according to their individual interests, barriers, and needs. Establish local terminals to allow users to interact with the system.

Topic 3.02 COORDINATING SERVICES AND ENCOURAGING THE COLLABORATION OF ALL POTENTIAL COMMUNITY RESOURCE PERSONNEL

Groups that provide medical services, education, advocacy, vocational education, industrial arts training, counseling, and placement services have, by necessity, developed individual identities as both disciplines and agencies. These compartmentalized agencies enable concentration on one phase or specialty, and compartmentalization is understandable from both a professional and managerial viewpoint. However, in the area of job preparation and placement of the severely handicapped, such divisions create difficulties for the handicapped worker. When attempting to navigate through the entire system, a handicapped person training for a job or a place in the community will usually have to become involved with several separate agencies. Since it often happens that these agencies pay attention to only a certain aspect of a person's development, reinforcement of other services for the benefit of the person being served may be weak or even nonexistent.

Since agencies are separate, a handicapped person can expect to encounter separate evaluation procedures, separate attempts at skill development, separate counseling, and a separate set of expectations while moving from one agency to the next. Very little steady support or continuity is available to the handicapped person who must negotiate many services, each with its independent objectives and purposes.

Another aspect of this topic is the involvement of business, labor, and industry. Persons in these areas control jobs and can be very helpful in designing programs relevant to the job market, both as it exists and as it might be in the future. They are also necessary in establishing on-the-job training programs and in placing handicapped workers on the job once training is completed.

RECOMMENDED ACTIVITIES *Development, Evaluation, Dissemination*

Models for coordination of services. There is a need to develop model systems that organize the total resources within a community, both present and potential, in order to coordinate and develop appropriate services. The extent to which it is desirable for programs currently duplicating services to delineate and to separate their roles should be evaluated; cooperation among programs should be encouraged. Model systems should include a statement of expected outcomes and objectives and built-in evaluation mechanisms for corrective feedback. Positive practices should be identified and dissemination encouraged where effectiveness has been demonstrated. The extent to which roles for business, labor, and industry can be delineated in the system should also be investigated.

Example activity. BEH should locate exemplary community systems by nomination from experts. A study should be undertaken of these systems to describe the specific needs to which they respond, how they developed, and the evidence of effectiveness. These practices should then be disseminated to local education authorities.

Topic 3.3 IMPROVING EVALUATION OF HANDICAPPED STUDENTS ON A VARIETY OF DIMENSIONS

While instruments for skill evaluation are available, there is room for improvement in designing instruments specifically tailored to the training and skill needs of the severely handicapped. These instruments should be validated on severely handicapped populations.

Effective individual evaluation serves a variety of training needs and purposes. First, evaluation serves as a source of information about the strengths and deficiencies of an individual in relation to educational or occupational placement requirements. Information gained from such evaluations can then be utilized to determine the instructional methods needed to overcome deficiencies and to build and expand upon strengths. Evaluation conducted at various phases of programming can provide useful information about student progress and indicate areas of development that still need attention. Evaluation devices can also assess readiness for occupational placement by matching an individualized fund of skills, knowlege, and attitudes against job requirements (see Topic 4.2).

RECOMMENDED ACTIVITIES

Development

Validity. From the point of view of the handicapped person, there is an urgent need for evaluation instruments that are fair and nondiscriminatory, particularly when examinations are used for selection into training programs or jobs. Advocates for the handicapped contend that many instruments reflect society's traditional myths and misconceptions about what handicapped people can and cannot do; that they do not make allowances for the various methods that have been used to overcome barriers; and that they have been tailored to the needs of the nonhandicapped.

Comprehensiveness. Measures are needed that assess all relevant areas (self-care, psychological status, medical status, and socio-emotional and cultural factors) with a view to identifying occupations in which the handicapped can succeed. Accurate information from such assessment devices will be useful in designing better programming as well as helping individuals to determine careers.

Independent living and prevocational skills. Practitioners are particularly interested in the development of instruments to assess independent living and prevocational skills. Independent living skills refer to those skills required of handicapped workers to maintain themselves independently outside of a sheltered environment (e.g., bathing, using the toilet, grooming, cooking, maintaining a household, taking care of emergencies).

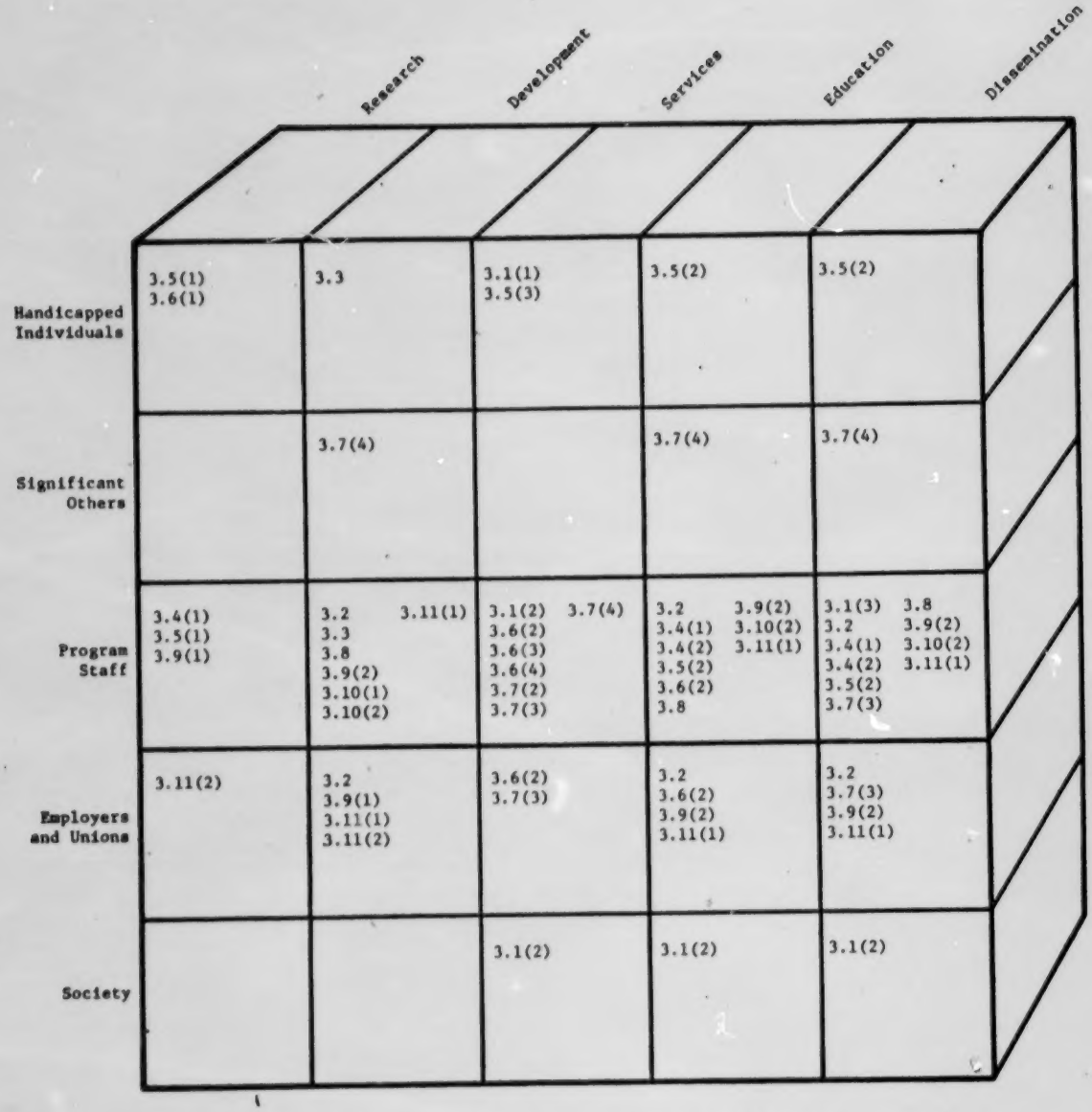

Figure 2. Categorization of recommendations for Educational Programming.

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RECOMMENDED ACTIVITIES

(1) *Services*

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> Example activity. Locate ongoing ombudsman services by survey or by nomination. Determine the roles being played by the ombudsman, and evaluate the outcomes of these roles for the handicapped person and his or her guardian. Publish the results in professional journals. The specific program needs to which the ombudsman is responding should be explicit so that "how to" packages may be prepared for dissemination to other programs with similar needs.

(2) *Services, Evaluation, Dissemination*

Mass media, exemplary programs. Methods for working with the mass media to disseminate information about resources should be investigated. Studies should be undertaken to determine the most effective media and techniques, under what conditions, and for what services. Exemplary programs should be

Evaluation devices are needed that assess the extent of the development of prevocational attitudes, skills, and capacities and that suggest appropriate intervention strategies. While tests suitable for nonhandicapped and less severely handicapped persons are on the market, further adaptations are required for the severely handicapped who cannot fully utilize these tests because of physical or communication limitations.

Example activity. Support should be provided for the development of instruments that have more validity and are less discriminating against particular handicapping conditions.

Topic 3.4 INSTITUTING EFFECTIVE METHODS FOR PROGRAM EVALUATION

Improved evaluation capability is a major need for programs providing rehabilitation and training services for severely handicapped persons. More information is required on the scope of programming problems and the effectiveness of efforts intended to surmount them. Better collection and use of evaluative information is essential in planning and in managing programs to help the severely handicapped reach their full potential. A broader base of skills and knowledge is necessary to fully utilize evaluation to improve programming.

Demonstrating competency in serving handicapped clients is an increasing requirement for many programs. Accountability is increasingly required by both public and private funding agencies. Additionally, programs are being required to comply with more definitive legislative requirements in order to receive funding. For example, the Education for All Handicapped Children Act of 1975 (PL 94-142) stipulates requirements that programs must meet in order to be eligible for funding.

Many programs serving the handicapped do not have, nor can they afford, highly skilled evaluation personnel or complicated evaluation programs. Money devoted to program evaluation must usually be obtained from funds that would otherwise be available for conducting other aspects of the program. Therefore, the expense of conducting evaluations is justified only if the information that evaluation provides is critical to meeting the needs of the program.

RECOMMENDED ACTIVITIES (1) *Research, Evaluation, Dissemination*

Program evaluation models. Suitable program models adaptable to a variety of programs are required to enable relatively unsophisticated program staff to gather relevant information as efficiently as possible to help bring about desired program improvements or to ascertain if programs are in compliance with critical funding requirements. More information is required about the following: To what extent are different evaluation models required for different types of programs? To what extent can sophisticated models be implemented by program staff? How can the resources needed to implement and administer program evaluation models be kept to a minimum? How can evaluation models be developed that provide more information about specific practices as well as total program effectiveness? (It may be that the effective practices of a program can be disseminated successfully when a total program cannot.) How can evaluation models be implemented without disrupting program activities unnecessarily? Can adequate evaluations take place that provide convincing conclusions without the use of control groups (which require treating one group and not the other with the program technique under study)? What kinds of indicators of program success or effective practices are most convincing to practitioners and decision makers?

Example activity. Develop a variety of program evaluation models responsive to the needs described above. Field test the models and disseminate practical evaluation guides explaining how to implement the models according to specific programming needs.

(2) *Evaluation, Dissemination*

Effective practices library. A central collection of research results regarding the characteristics of effective programs would be useful to practitioners. It would be useful to disseminate successful programs and practices as widely as possible.

Example activity. Identify both programs and specific practices demonstrated to be effective through appropriate experimental procedures. Present these programs and practices to the Joint Dissemination Review Panel (or use another appropriate review procedure). Prepare project information packages (PIPS) for dissemination to programs serving the severely handicapped and maintain a library of the PIPs at BEH's Learning Resource Centers.

Topic 3.5 INCREASING PREVOCATIONAL EXPERIENCE AND WORK ADJUSTMENT SKILLS IN ORDER TO HELP HANDICAPPED PERSONS SUCCEED IN EMPLOYMENT

Any worker must have a variety of work adjustment attitudes, skills, and capacities in order to succeed. For the handicapped worker, these may cause special problems because the handicapping condition results in restricted work experience. Work adjustment attitudes, skills, and capacities include maintaining consistent and stable acceptable behavior; maintaining self-control over destructive, disruptive, inappropriate, or antisocial behavior; building resistence to fatigue; the ability to follow directions or procedures; the ability to adapt to changes in assignments; the ability to understand conversations as they relate to learning and performing assigned work; the ability and willingness to listen to and make a genuine effort to follow through with supervisor instructions and suggestions; and the desire and effort to work, including the willingness to work at a task until it is completed.

Cull and Hardy (1973) have noted that work adjustment training is essential for the individual who has not gained the basic work skills necessary for employment in our culture. This deficiency in basic work skills may result from environmental factors such as a sheltered home environment that prevents the development of such skills; severe cultural social deprivations that retard the development of the individual's self-concept as a worker; family patterns and role models that preclude the development of workmanship skills in the individual; or a combination of these factors. These factors can be accentuated by the disability itself, which has an isolating influence.

A large field of literature deals with the concept of work adjustment relating to the rehabilitation process. Nevertheless, the speed and efficiency of methods of developing work adjustment skills need to be improved. The long-term developmental nature of such skills tends to suggest that interventions should begin very early in the life of a handicapped person.

RECOMMENDED ACTIVITIES (1) *Research*

Developmental tasks. Research should be undertaken to clarify and define appropriate work-related developmental tasks for the severely handicapped. Longitudinal studies should be undertaken to understand the developmental process in handicapped persons. Are developmental tasks the same, and in a similar sequence, for the severely handicapped as they are for the nonhandicapped person? When tasks have not been mastered, is the development of task mastery simply delayed for handicapped persons, or are there tasks that they will never be able to master? What effect does this have on the occupational choice of the handicapped worker?

Example activity. Undertake a longitudinal study of persons with severe communications, skill, or environmental barriers to determine the effect of these barriers on the mastery of essential developmental tasks related to occupational success. (For further discussion of these barriers, see the VOTAP handbook, Vocational Opportunities, pp. 21-45.)

(2) *Evaluation, Dissemination*

Minimizing faulty development. Continued support should be given to research that studies methods and techniques for minimizing the effects of faulty development of prevocational and work adjustment skills. What methods and techniques are effective in what situations, and performed by whom? To what extent can these methods be replicated and disseminated to other programs?

Mandatory prevocational training. The advisability of making prevocational training mandatory for handicapped children in programs supported by public funds should be investigated. However, no attempt should be made to mandate such training unless sufficient research and expert opinion define clearly what the outcomes of such training should be, as well as the methods that should be utilized.

Example activity. BEH could help local program personnel by identifying effective practices and disseminating guides to setting up similar practices. (For additional suggested activities, see Topics 4.2 and 4.3.)

Topic 3.06 INCREASING THE EMPHASIS ON TRAINING COMPETENCIES RELEVANT BOTH TO THE GOALS OF THE HANDICAPPED STUDENT AND TO THE JOB MARKET

Many observers believe that programs frequently prepare handicapped persons for placement into the secondary labor market--that is, dead-end, lower-paying jobs--rather than prepare them for the primary labor market, which would be more personally rewarding. Career preparation should be in accordance with the desires and interests of the individual, including giving positive judgment to outcomes other than competitive employment.

The main issue related to this problem appears to be the desirability of providing as many options as possible so the handicapped person can feel that he or she is achieving worthwhile personal goals and satisfactions. Some may desire to enter competitive employment and achieve in that area to the maximum extent possible. To this end, programs should make certain that the training provided develops appropriate skills and utilizes the talents and motivations of the individual. Other handicapped persons may desire employment but not have the need to excel in the competitive arena; they may wish to work in sheltered workshops where the work is more structured. For some, outcomes other than employment may be desirable. For example, self-maintenance skills may be the most desirable outcome so that the individual can live independently in a family environment without the necessity of other family members having constantly to care for personal needs. This would free other family members to engage in more extensive activities outside the home, such as employment.

RECOMMENDED ACTIVITIES

(1) *Research*

Clarification of goals of the handicapped. A desirable study would be to clarify more precisely the goals and aspirations of severely handicapped persons to determine what they want and need in order to improve their lives and help them achieve a sense of personal fulfillment. The goals, needs, and aspirations of significant others related to the handicapped person should also be a matter for study.

> Example activity. Conduct a survey of persons with various kinds of severe handicaps to determine the real occupational goals and aspirations of handicapped individuals. Where required, develop special survey methods in order to interview persons with communication handicaps.

(2) *Services, Evaluation*

Competitive employment. When obtaining competitive employment is the major goal of a handicapped person, research should be conducted in job development. Job qualifications to meet employer needs should be written and incorporated into educational programs. These programs should be modified to include the job specifications derived from job and task analyses. Programs need to keep up to date on medical and technological developments that are

continually creating new job possibilities. BEH should stimulate interest in this objective by funding exemplary programs and disseminating information about effective practices through such methods as newsletters, clearinghouses, program information packages, etc.

Example activity. Design a training service delivery model that solely and systematically focuses on obtaining competitive employment for persons with communication handicaps. Such a service model would be of use in adapting communication devices to the specific needs of the individual. Disseminate information about the model through newsletters and articles. Similar models could focus solely on skill or environmental barriers. (For further discussion of these barriers, see the VOTAP handbook, Vocational Opportunities, pp. 21-45.)

(3) *Services*

Sheltered work. For handicapped persons most appropriately suited to a sheltered work environment, research should be conducted to develop models to increase the variety of work available. The workshop environment should be sufficiently motivating and geared to the variety of skills possessed by severely handicapped persons. The sheltered workshop should also ensure that work programs recognize and encourage individual talents and motivations.

Example activity. Provide technical assistance and funding at the community level to businesses and industries to enable them to establish sheltered work enclaves within their own facilities. In this way the variety of sheltered occupations can be increased.

(4) *Services, Evaluation, Dissemination*

Self-maintenance. For those persons unable to work, independent living is still a very desirable option. Appropriate program- and home-based curricula models need further development. These models should stress the motivation of the handicapped person and the acquisition and maintenance of self-care skills and habits. They should also stress the ability to utilize leisure time and the ability to aid and support workers in the home. Such programs have been developed, but it would be useful for BEH to identify model programs that have demonstrated effectiveness in meeting their objectives and to disseminate information about them.

Example activity. Develop a variety of service models designed to establish independent living skills for handicapped persons in the home. Evaluate and disseminate "how to" packages for effective models and address the common goals of various home-based programs. Target audiences for such materials would be parents or guardians and outreach programs serving the severely handicapped.

Topic 3.7 DEVELOPING APPROPRIATE CURRICULA AND INCREASING THE EFFICIENCY AND EFFECTIVENESS OF INSTRUCTIONAL METHODS

The needs addressed here refer to the planned sequence of instructional activities and materials designed to meet training objectives or outcomes. A continuing need exists to improve these activities and materials in order to improve the knowledge, skills, and attitudes of students. While a great deal is known about effective instruction, continuing need remains to do things better.

Curriculum and instruction is an important area in which many programs are integrating research findings with methodology. A number of these strategies were outlined in another handbook in this series, Vocational Opportunities. Vocational training programs vary widely in scope; methods; the extent to which research is integrated into programming procedures; the extent to which business, labor, and industry are involved in the training process; and the extent to which vocational skill training emphasizes skills required for well-defined jobs, as opposed to skill training that takes place according to occupational or educational clusters. A variety of research topics may help advance the state of the art regarding instructional methods for the severely handicapped.

RECOMMENDED ACTIVITIES

(1) *Research*

Instructional techniques. Some researchers, notably Gold (1972) and Bellamy (1976) have demonstrated the effectiveness of precision task analysis and behavior modification techniques to improve the skills of severely retarded persons in performing fairly complex and sophisticated assembly tasks. These recently developed methods are being disseminated to other programs with apparent success, and have raised the expectation that even the severely mentally retarded are capable of more productive work, given effective training. Continued support should be given to programs that are refining and developing this methodology and to others that have high impact and can demonstrate effectiveness. Some potential areas for breakthrough identified by observers and practitioners include the following:

- To what extent can vocational training be given without the use of verbal instruction? In which situations is nonverbal instruction or bookless instruction most likely to succeed? (See Iverson, Silberberg, Sermon, & Chorn, 1972.) (One major barrier to learning for many severely handicapped persons is mastering the written language.)

- To what extent can methods used by business and industry to train employees be implemented into programs for the severely

handicapped in order to make the training environment as realistic as possible and to improve the chances of transfer of skills training into the world of work?

- In what circumstances should mastery learning concepts be applied to training severely handicapped persons?
- To what extent can automated instructional devices or procedures improve the level of training?
- To what extent can peers be used to tutor handicapped persons and how effective are they compared with other instructional methods?
- To what extent can the systems approach be used to improve overall program effectiveness? Typically, such an approach first includes the determination of needs; second, the specification of long-term program and student outcomes; third, the development of evaluation methods for students and program activities relative to these outcomes; fourth, the development of appropriate strategies and methodology to help students reach appropriate outcomes or to enable a program to achieve its outcomes; and fifth, the evaluation of student progress and relevant program activities in order to apply corrective feedback to the instructional system.

Example activity. Develop alternative programming models designed for persons facing common specific barriers to employment in the areas of communication, environment, or skills. (For further discussion of these barriers, see the VOTAP handbook, Vocational Opportunities, pp. 21-45.) Programming should emphasize the assessment of individual needs and the development of strategies and provision of equipment required to meet these needs. Determine the instructional techniques most effective for specific needs.

(2) *Services*

Clustering system. One problem of many vocational education programs is that vocational instruction is too narrow to meet the variety of skills that may be required on the job. One area of investigation should focus on the extent to which severely handicapped persons can be trained for a variety of jobs using the cluster system used for vocational training of nonhandicapped students. Instead of concentrating solely on specific tasks, the cluster concept concentrates on teaching systems of obtaining information that enable workers to perform any job that may be relevant. Ways are needed to teach basic skills in vocational education programs for the severely handicapped that will transfer as widely as possible to jobs in the world of work so that the handicapped person may have as many options as possible.

Example activity. Investigate the impact on employability of the handicapped who are trained using cluster systems compared to handicapped persons who are trained using task analysis systems keyed to the local

job market. Determine what variables X what needs are crucial for such programs to be effective.

(3) *Services, Dissemination*

Business, labor, industry involvement. Many practitioners believe that the transferability of vocational training into the working world for severely handicapped persons would be improved by increasing the extent to which business, labor, and industry personnel are involved in the instructional process. A number of models are already available that could be studied. These range from industry resource persons conducting program courses to the establishment of enclaves of handicapped persons in industrial settings. These handicapped workers would be supervised by industrial personnel, with program support personnel being available on a standby basis when needed.

Example activity. Undertake a comprehensive study of the impact on employment of involving business, labor, and industrial personnel in various types of vocational programming for the handicapped, for example, conducting program courses or establishing enclaves in business.

(4) *Development, Services, Evaluation, Dissemination*

Parents. Parents are seldom involved in providing services for their children and parental participation is less effective than it should be. To what extent is family involvement desirable in the intervention process? Under what conditions? Where it is desirable, models for maximizing parent and family involvement in programming should be developed and disseminated.

Example activity. Develop mainstreaming programming models for the severely handicapped that emphasize the involvement of parents in vocational programming. These models should address needs common to large numbers of programs to ensure that the procedures can be broadly disseminated. Parents may be especially effective in program planning and design and as classroom aides to help the vocational teacher.

Topic 3.8 OBTAINING SUFFICIENT CAREER INFORMATION AND AWARENESS TO MAKE APPROPRIATE CAREER DECISIONS

In general, there is inadequate and insufficient career counseling and guidance in programs serving the severely handicapped. Counseling too often deals with short-term goals to the exclusion of long-range career and life planning. Individuals are assisted in securing immediate jobs, often desirable or necessary goals , but more attention should be given to other options and to the long-term ramifications of decisions. This is a particular problem for severely handicapped persons because of restricted educational and work experience. A severely handicapped worker often has difficulty accumulating appropriate career information, becoming aware of viable alternatives, and making appropriate career decisions.

RECOMMENDED ACTIVITIES *Development, Evaluation, Dissemination*

Curriculum infusion. To what extent can career education concepts be infused into program curricula? Such concepts include career awareness, self-awareness, career exploration, consumer and survivor skills, decision making, and problem solving related to choosing an occupation. Effective infusion models focusing on the needs of the severely handicapped should be identified and appropriate and effective methods disseminated.

Career guidance. Career guidance models suitable for handicapped persons should be developed. These models use methodology developed in career guidance programs for nonhandicapped, special education concepts, and the concepts of work activity centers used in vocational education. Such models would concentrate on helping the handicapped person gain access to as many occupational options as possible, to evaluate these options, and to receive appropriate guidance in making related decisions. Such models, or effective components of such models, need to be disseminated once they are shown to be demonstrably effective.

Example activity. Develop career education materials specifically for use in vocational programming directed toward mentally retarded or other groups with severe skill deficits. Specific materials could also be developed for those facing severe communication or environmental barriers. (For further discussion of these barriers, see the VOTAP handbook, Vocational Opportunities, pp. 21-45.) Publish these materials through commercial publishers or disseminate through BEH Learning Resource Centers.

Topic 3.9 INVESTIGATING THE EFFECTS OF MAINSTREAMING

Mainstreaming is widely regarded as a method helpful in moving the handicapped toward normalization and as a way of deinstitutionalizing severely handicapped persons. It is also hoped that mainstreaming will enable handicapped persons to have more of the advantages and experiences of public education programs.

Mainstreaming is not a panacea, however. It is not yet known under what circumstances mainstreaming is appropriate. Models need to be developed to overcome the many barriers to mainstreaming traditionally placed in the way of severely handicapped persons. These models should not be severely disruptive to traditional classroom situations.

RECOMMENDED ACTIVITIES (1) *Research*

Applying mainstreaming. The advantages and disadvantages of mainstreaming need to be identified fully. Does mainstreaming reinforce or eliminate negative attitudes? Does mainstreaming deprive the handicapped of needed services? Does it help to guarantee these services? At what age and in what training situations is mainstreaming most effective? What schedule, curriculum, and equipment modifications are essential in public classrooms to accommodate severely handicapped persons? What supplemental educational services are required, and how are these best delivered?

Longitudinal effects of mainstreaming. Longitudinal research should be undertaken to demonstrate the effects of mainstreaming, to identify persons best suited to mainstreaming, and to identify techniques that help to answer the questions raised in the paragraph above. Legislative action, such as the Education for All Handicapped Children Act of 1975, has moved in advance of research knowledge regarding the many implications of mainstreaming practices. Documentation of the implementatation of such practices should be extensive. The Education for All Handicapped Children Act of 1975 will offer the opportunity for monitoring the effects of such programs on an unprecidented scale.

Other factors associated with normalization and deinstitutionalization. There is a need to determine factors others than mainstreaming that may be important in achieving normalization and deinstitutionalization.

Example activities. Conduct a longitudinal study of a representative cross section of well-established mainstreaming programs to determine the long-term outcomes of these programs. Occupational, emotional-social, and individual satisfaction should be among the major outcomes.

A longitudinal or retrospective study is needed to identify those programming methods associated with severely handicapped persons who have

achieved a high degree of normalization and deinstitutionalization. Such an empirical study would first identify severely handicapped persons who are successful and then identify those factors influential in the achievement of their success.

(2) *Development, Evaluation, Dissemination*

Interagency cooperation. Models need to be developed that demonstrate cooperative arrangements between programs undertaking mainstreaming and the organizations that support those programs. For example, in the school setting vocational educators, special educators, and general educators must work together along with rehabilitation personnel from outside agencies. Mainstreaming demands this kind of interdisciplinary cooperation from the very beginning of programming, from recruitment to assessment and throughout the other phases of the program. No one of these groups can be given all of the knowledge regarding effective mainstreaming practices; these groups must work together and, happily, the system will allow this cooperation. Recent legislation will probably provide sufficient impetus to develop these models. Research should be directed toward identification of effective models and the dissemination of model programs or effective program components.

Example activity. Identify the barriers that prevent cooperation between the various groups and agencies that will be involved in mainstreaming handicapped students. Specific strategies to overcome these barriers should be identified. Then programming models should be developed and disseminated based on these barriers and strategies.

Topic 3.10 IMPROVING THE LEVEL OF APPROPRIATE SKILLS OR BACKGROUND OF STAFF RELATIVE TO PROGRAMMING OBJECTIVES

Some practitioners express disappointment with performance of programming staff. The main problem appears to be that in some cases programming staff do not possess a suitable mix of vocational and special education background and training. Additionally, there is a need for personnel with industrial, business, engineering, and management experience. A considerable gap is noted between the fields of vocational education and special education, and the suggestion is made that these two fields should be bridged by staff working with severely handicapped persons. Several programs expressed disenchantment with staff recruited from the helping professions and suggested that more management-oriented persons with actual industrial experience be used to run programs for the severely handicapped.

RECOMMENDED ACTIVITIES

(1) *Development*

Interdisciplinary training. Methods are required for ensuring that program staff have knowledge and skills across several current disciplines. Support should be given to universities desiring to build departments specializing in the training of staff who work with the severely handicapped. Instructional programs for such departments should include applicable concepts from vocational education, special education, rehabilitation, and business management. Students in these programs should learn how to recognize and deal with persons who have special learning needs, how to conduct evaluations of handicapped persons, and how to select and adapt instructional materials and training environments to meet the special needs of the handicapped. They should be able to provide career education and occupational guidance and appropriate vocational skill development. They should learn how to perform job and task analysis, carry out program evaluation, and undertake appropriate job and market surveys to determine occupations available for severely handicapped persons in a given area. They should learn the principles of small business management and how to procure contracts. They should learn the skills necessary to work with the community and with parents of severely handicapped persons. Students should become thoroughly acquainted with the research literature to enable them to integrate the findings of research into programming methods and to bridge the rather large gap between research knowledge and its application to programming practices.

Example activity. Model university training programs that focus on the development of this new professional for working with the severely handicapped should be identified and support should be given to the dissemination of these models and their effective practices through professional organizations and the professional literature.

Inservice training. While one solution to lack of appropriate training for programming staff may be the development of appropriate preservice programs, sufficient attention must be given to practitioners already in the field who lack appropriate skills or whose skills could be improved by inservice training. Also, as preservice programs designed to educate practitioners in the field are unlikely to adequately simulate actual working experiences and requirements, those receiving preservice need to be trained to adapt basic skills obtained in preservice programs.

New training delivery models should be designed that maximize the benefits of traditional preservice and inservice programs and minimize their problems. For example, preservice programs are often theoretical and far removed from the actual working conditions that students are likely to encounter. The theoretical background, however, is often useful in solving problems that the student will face as a practitioner. Training models are required that allow the trainee to be involved in the solution of real programming problems and, at the same time, provide the required resources to find information and ideas and to help think problems through to creative solutions.

> Example activity. Develop inservice training models fairly different from training models now being applied. They may involve the utilization of such vehicles as seminars or conferences conducted by experienced training experts outstanding in the field. The staff member may be required to present a particular programming problem to which a solution is being sought. Utilizing the expertise that is available at the seminar, proposals may be drafted, discussed, and taken back for further discussions with programming staff for possible implementation. Fundamental to this concept is the assumption that rapid and efficient training is a by-product of a situation in which a person with basic skills is given a real problem to solve and in which the resources needed to solve the problem are enriched to the maximum.

(2) *Development, Evaluation, Dissemination*

Interdisciplinary staff programs. Programming models need to be identified that emphasize a multidisciplinary team approach to the vocational training and placement of severely handicapped persons. These models may emphasize the use of rehabilitation counselors, social workers, vocational instructors, and support personnel along with sheltered employment and competitive employment, either through regular placement in business or through the establishment of enclaves in business and industry. Such models should focus on how these various specialists are able to work together, how they can share expertise with one another, and how conflict between treatment philosophies can be resolved. For example, some vocational educators are reluctant to regard unpaid or volunteer work as real and valuable. Some special educators resist the notion of paid competitive employment for their students. Helpers of handicapped individuals tend to become possessive of their clients and students. In some cases, special education teachers have been reluctant to commit themselves to integrated, mainstreamed approaches because they doubt the capabilities of other personnel.

> Example activity. BEH could help local program personnel by identifying effective practices and disseminating guides to setting up similar practices where the same needs exist.

Topic 3.11 SMOOTHING THE TRANSITION FROM TRAINING PROGRAMS OR SERVICES INTO THE WORK ENVIRONMENT

Handicapped persons are often unable to move directly from the training environment into a working environment. Transitional programs or services are needed to smooth this transfer. One problem is that the skills learned in vocational training programs do not easily transfer into real work settings. This is because the motivation on the job and the motivation in a training program are not identical; the production requirements are not identical; and the working environment, social contacts, and the like are not the same.

Another problem is that employers are seldom convinced that the handicapped can be productive workers until they are seen to be productive in the employer's own business. Another aspect of the problem is that severely handicapped persons may be required to move too abruptly from a supportive environment in which they are relatively dependent to competitive employment where they are suddenly required to be self-reliant.

RECOMMENDED ACTIVITIES

(1) *Development, Evaluation, Dissemination*

Work training. While most programs serving the severely handicapped provide some kind of work training program, these experiences vary greatly in scope and quality. The outcomes of these programs need to be investigated.

Example activity. Model programs should be identified that show how such services can be organized and show the methods used to deliver services. It will be important to identify the models and model components that lead to the most effective transfer of skills, the models most effective in convincing employers that handicapped persons can be productive workers, and the practices most effective in teaching handicapped persons self-reliance and other prevocational skills and attitudes necessary for survival in the working world. Examples of techniques that need to be investigated further are on-the-job training programs; simulating work environments in training institutions; establishing classrooms within selected industries; investigating the effects of paid and unpaid work performed during training or apprenticeship programs; and varying the background and expertise of the support staff required to establish programs. Cost effectiveness of various programs should also be studied.

(2) *Research, Development*

Business and industry models. An ultimate model for investigation would be to encourage a business or industry to take full responsibility for development of a program for severely handicapped persons. Is it feasible within the American free enterprise system, given business, industry, and labor expectations, to assume that private industry should undertake the

development of programs for handicapped persons? What incentives would be adequate or effective to persuade business to undertake such development? Is it possible to provide federal funding? Can welfare money be diverted from rehabilitation agencies into businesses and, if money were diverted, would businesses be more effective in providing vocational training than the public and private programs currently offering these services?

Example activity. Develop model programs in industry that include recruitment of handicapped persons, appropriate vocational training, work experience, and competitive employment utilizing profit incentives. Such programs could use the resources of rehabilitation programs (e.g., technical assistance) but would not relinquish responsibility or control to these service agencies. The Rehabilitation Services Administration's "Projects with Industry" are a step in this direction.

RECOMMENDED PRIORITIES FOR EDUCATIONAL PROGRAMMING AREA

Research and Development Topic	Recommended BEH Priority		
	Immediate	Interim	Long-Term
3.1 Increasing Information about Services			
(1) *Services* Outreach systems, ombudsman	———	- - - -	- - - -
(2) *Services, Evaluation, Dissemination* Mass media, exemplary programs	- - - -	- - - -	- - - -
(3) *Dissemination* Clearinghouses	———		
3.2 Coordinating Services			
Development, Evaluation, Dissemination Models for coordinating services	———	- - - -	- - - -
3.3 Improving Student Evaluation			
Development Validity, comprehensiveness, independent living and prevocational skills	———	———	———
3.4 Improving Program Evaluation			
(1) *Research, Evaluation, Dissemination* Program evaluation models	———	- - - -	- - - -
(2) *Evaluation, Dissemination* Effective practices library	———	———	———
3.5 Increasing Prevocational and Work Adjustment Skills			
(1) *Research* Developmental tasks	- - - -	- - - -	- - - -
(2) *Evaluation, Dissemination* Minimizing faulty development	———	———	———

Key: Strong Emphasis ———
Moderate Emphasis - - - - -
No Emphasis blank

Recommended Priorities for Educational Programming Area (continued)

Research and Development Topic	Recommended BEH Priority		
	Immediate	Interim	Long-Term
3.6 Increasing Competencies Relative to Job Market and Goals of Handicapped Person			
(1) *Research* Clarification of goals of handicapped	→	→	→
(2) *Services, evaluation* Competitive employment	→	→	→
(3) *Services* Sheltered work	→	→	→
(4) *Services, Evaluation, Dissemination* Self-maintenance	→	→	→
3.7 Developing Curricula and Increasing Efficiency			
(1) *Research* Instructional techniques	→	→	→
(2) *Services* Clustering system	→	→	→
(3) *Services, Dissemination* Business, labor, industry involvement	→	→	→
(4) *Development, Services, Evaluation, Dissemination* Parents	→	→	→
3.8 Obtaining Career Information and Awareness			
Development, Evaluation, Dissemination Curriculum infusion, career guidance	→	→	→

Recommended Priorities for Educational Programming Area (continued)

Research and Development Topic	Recommended BEH Priority		
	Immediate	Interim	Long-Term
3.9 Investigating the Effects of Mainstreaming			
(1) *Research* Applying mainstreaming, longitudinal effects of mainstreaming, other factors associated with normalization and deinstitutionalization	→	→	→
(2) *Development, Evaluation, Dissemination* Interagency cooperation	→	→	→
3.10 Improving Staff Skills			
(1) *Development* Interdisciplinary training, inservice training	→	→	→
(2) *Development, Evaluation, Dissemination* Interdiscliplinary staff programs	→		
3.11 Smoothing the Transition to Work			
(1) *Development, Evaluation, Dissemination* Work training	→	→	→
(2) *Research, Development* Business and industry models	→		

Chapter 4 Occupational Independence

INTRODUCTION

This chapter presents activities that can be undertaken to lead the severely handicapped to greater occupational independence. These activities are intended to help fit the severely handicapped individual more congenially into the working world. Three topics are addressed below:

4.1 Fostering positive public attitudes toward the handicapped in the workplace

4.2 Identifying jobs in which the handicapped person can succeed and meet personal needs

4.3 Modifying the job or work environment to accommodate the handicapped worker

Figure 3 is a categorization of recommendations (Groups x Activities) for Occupational Independence according to the theoretical model discussed in Chapter 1.

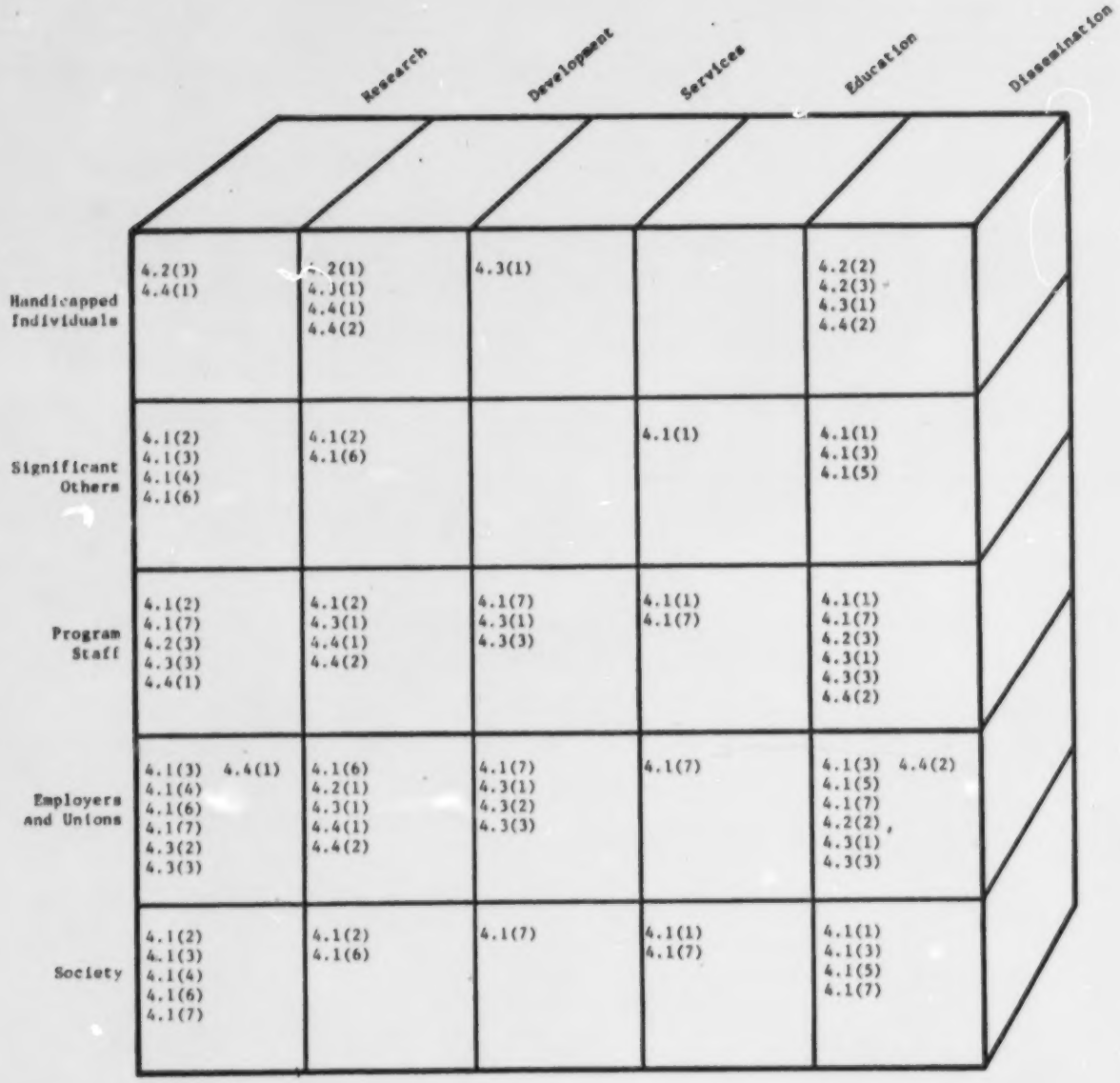

Figure 3. Categorization of recommendations for Occupational Independence.

Topic 4.01 FOSTERING POSITIVE PUBLIC ATTITUDES TOWARD THE HANDICAPPED IN THE WORK PLACE

Handicapped individuals are not often thought of as potentially productive members of society. Rather, the able bodied and intellectually alert are considered first, whether or not such qualities are required for successful job performance. This section is concerned with informing the public about the capabilities of handicapped persons and pointing out attitudes that result in the unfair exclusion of the handicapped from the job market.

RECOMMENDED ACTIVITIES

Informing the Public

The public is often poorly informed about the nature of handicapping conditions and the capabilities of handicapped people. This creates a climate in which the competence of a handicapped worker may be unfairly doubted or in which expectations may be unnecessarily low. The activities suggested below are designed to provide the public with accurate information.

(1) *Evaluation, Dissemination*

Public advertising. Television spots, direct mailing, and newspaper articles about the activities of handicapped persons are among the approaches currently used to disseminate information about the handicapped to the public. The effectiveness of various procedures for imparting information should be assessed and the results made available to public and private agencies serving the handicapped.

> Example activity. Develop "how to" packages describing the most effective methods of conveying various types of information.

(2) *Research, Development*

Public instruction. Efforts should be made in textbooks and other instructional materials to include information about handicapping conditions and the contributions of handicapped people. The situation is analagous to that which pertained to ethnic minority groups until recently--information about the handicapped and their achievements usually does not appear in instructional materials, and handicapped people are not often shown as participants in school and community life. The lessons learned in the push for greater representation of minorities and their accomplishments should be investigated to discover effective ways of advocating a more thorough and sensitive treatment of the handicapped.

Example activity. Determine what type of representation is most effective in reducing stereotypes regarding minority group members. Develop and test sample materials that employ these types of representation showing the handicapped.

(3) *Research, Dissemination*

Types of information. Research should be undertaken to determine the types of information that need to be disseminated to employers, educators, unions, and the public at large to encourage their willing and effective support. Much current publicity is of the "remarkable success stories" variety, which may not be conducive to opening employment opportunities more widely. By making accomplishments seem remarkable, such publicity may suggest that a similar result would be difficult to duplicate by ordinary people, when the real goal of such publicity should be to encourage like accomplishment.

Example activity. Develop and field test attitude change materials with employers. Various strategies should be used in these materials (for example, varying the source of the communication and whether or not the communication is one-sided or two-sided).

Public Attitudes

Society places great value on beauty, charm, and mental ability. Often, people are selected for jobs on the basis of these characteristics, whether or not they are relevant to the job. This attitude works to exclude the handicapped from consideration for jobs that they may well be able to perform.

(4) *Research*

Types and pervasiveness of negative attitudes. Research should be conducted to identify and determine the pervasiveness of attitudes that work against the handicapped. Following this, various attitude change strategies should be investigated to determine how best to overcome the negative attitudes uncovered. Identification of change strategies for each type of attitude should at least include consideration of the groups of persons whose attitudes are most important to change; the types of information, activities, or contacts between the handicapped and nonhandicapped that work best in effecting change; and effective methods of disseminating information or inducing people to engage in the attitude change activities.

Example activity. Select various unfavorable attitudes (e.g., that the handicapped are incompetent, that the handicapped are to be pitied, that it reflects poorly on one to work with a handicapped person) and assess the effects of various types of interpersonal contact in changing such attitudes (e.g., handicapped persons instruct a class, participate in a panel related to handicaps and in a panel unrelated to handicaps, handicapped people at a social gathering).

(5) *Dissemination*

Effective methods of changing attitudes. Information about effective methods of changing attitudes should continually be disseminated to rehabilitation

workers, advocacy groups, and others involved in improving vocational opportunities for the handicapped.

Example activity. Develop dissemination materials that discuss the best strategies for various groups and provide practical suggestions for carrying out the strategies. Test the materials to see if they can be effectively used by practitioners.

(6) *Research, Development*

Effect of mass media. The effect of the mass media on public attitudes toward the handicapped deserves special emphasis. Recognizing that only a limited amount of air time or type space can be devoted to the handicapped, research should be directed at finding out how best to make use of that time or space. In addition to factual information presented about the handicapped, efforts should be made to encourage the frequent appearance in entertainment programs of characters who are handicapped. They should appear in these programs as full participants in society. The emergence of the black actor, for example, playing a wide variety of roles (particularly those for which blackness is not the raison d'etre for the character), provides a model for emulation.

(7) *Research, Services, Evaluation, Dissemination*

Personal contact between handicapped and nonhandicapped. As laws regarding educational opportunity, affirmative action, and architectural accessibility are implemented, greater contacts may be anticipated between the handicapped and nonhandicapped. Some workers and instructors in occupational education believe that the standards of their work or profession are lowered if they are required to work with the severely handicapped. Inevitably, some contacts on the job, in the classroom, or elsewhere will lead to desirable attitude changes more readily than others.

Programming techniques need to be developed, evaluated, and disseminated that are effective in integrating severely handicapped persons into the competitive world of work wherever possible. Some techniques have shown promise and need to be developed to a greater extent, such as the use of nonhandicapped persons from business, labor, and industry in the instructional programming of the severely handicapped; the establishment of on-the-job training sites; the establishment of employment enclaves in industry, adequately supervised by competent personnel from either the industry or a program serving the severely handicapped; and the recruitment of handicapped persons by governmental agencies into positions requiring public contact. These and other techniques allow the handicapped to demonstrate occupational competency.

Example activity. Conduct observational studies to identify procedures and situations most conducive to positive changes in attitudes as the nonhandicapped come into greater contact with the handicapped. The results of these observations can then be used to develop models for successful integration of the handicapped into the schools and into the work force.

Topic 4.2 ASSESSING APTITUDE, INTEREST, AND PLACEMENT READINESS

Handicapped persons differ widely in interests and abilities and therefore in the careers they wish to enter and in which they can succeed. In these respects, the handicapped do not differ from the nonhandicapped. The same general concerns are present when selecting an area for training, determining readiness for job entry, and finding a job. (Job training per se is discussed in Chapter 3: Educational Programming.) The activities recommended below are intended to facilitate the selection of a training program in accord with individual aptitudes and interests and to improve assessment of job readiness during or after training.

RECOMMENDED ACTIVITIES

Ideally, a person should work in a job that is rewarding and makes full use of his or her capabilities. This ideal is difficult for anyone to achieve, but it is a rewarding goal for the handicapped as well as the nonhandicapped. Guidance instruments and techniques have been developed to assess individual interests and aptitudes and to match these with the job market. Some instruments were designed specifically for the handicapped, and some were developed for the population at large but may be suitable for use with some handicapped persons.

(1) *Development*

Development of appropriate evaluation devices. A wide variety of paper-and-pencil performance tests exist that may be useful in measuring the potential of the handicapped. A study should be undertaken to review existing norms and scoring procedures to determine if they are adequate for predicting job performance of the handicapped. In some cases, such as the work sample techniques designed for use with the handicapped, adequate norms and scoring procedures may be available. In other cases, test norms and standards for interpreting scores may be based only on the nonhandicapped, and their validity for the handicapped may be problematical.

The need exists to develop better and more sophisticated instruments to predict the success of a severely handicapped person in potential careers. One fruitful area of investigation might be the extent to which evaluation instruments can predict success of a handicapped person once the barriers to better performance caused by the handicapping condition are removed. For example, if a person were faced with a communication barrier because of blindness, poor speech, deafness, or a combination of these disabilities, what performance could be expected given that these barriers were managed by the use of appropriate communication devices, an alteration in the working environment, or modification of the job requirements? Although such an assessment device may require the manipulation of several variables simulta-

neously, it would be very useful in pointing the way toward career intervention strategies with the highest payoff. It would be an instrument useful to a training and placement officer who is expanding his or her role to be more than that of a trainer, counselor, or placement officer. It would aid the placement officer to become a strategist in managing barriers by analyzing and applying possible options: to select jobs where the client's deficiency is irrelevant, to provide special training, to augment the person with an assistive device, or to redesign the job itself. (For further discussion of these barriers, see the VOTAP handbook, Vocational Opportunities, pp. 21-45.)

Example activity. Finance a study to evaluate norms and scoring procedures of various instruments for assessing intellectual, manual, and affective attributes as these instruments apply to the handicapped.

(2) *Dissemination*

Effective use of assessment information. Tests and procedures must be used effectively if they are to lead to satisfactory training and placement outcomes for severely handicapped persons. "Effective use" covers a multitude of virtues, all of which should be directed toward helping the client achieve more personally satisfying outcomes. Among these virtues are technically correct administration, scoring, and interpretation of tests; counseling to determine areas of interest; selection of instruments to assess capabilities in those areas; helping to select training suitable for a job in an area of interest; and, in general, to increase the options open to the individual.

Example activity. Conduct a research project directed at finding programs that effectively use tests and other assessment procedures to assist handicapped persons in exploring a wide range of opportunities in both the primary and secondary labor markets. Develop models of effective practice on the basis of this research and disseminate them widely.

(3) *Research, Dissemination*

Determining placement readiness. Once a person has received sufficient training, the next logical step is placement on the job. However, determining the point at which a person is ready for placement and determining precisely what "placement" means is not easy. For example, a person might be trained before placement to the level of proficiency expected of any entry-level worker in a competitive setting or to the level of a typical employee in a sheltered setting. Or a person could be partly trained before placement and then provided with on-the-job training or special on-the-job support.

Example activity. Undertake to identify the optimal point at which transition should be made from training to a work setting; which skills are best learned on the job and which in a training environment; and the kind of support needed as the person moves from training to a work environment. Effective techniques for determining the point at which an individual is ready for such a move could be identified and information about these techniques disseminated widely.

Topic 4.3 FINDING JOBS AND OPENING NEW EMPLOYMENT OPPORTUNITIES

Finding a job for a severely handicapped worker is a multifaceted undertaking. Employers must be convinced that the handicapped are legitimate job candidates; individual job candidates have to be brought into contact with employers; the employer may require incentives or support to hire a handicapped worker; and special supervisory relationships may have to be established if work is to be carried out in an essentially nonsheltered setting. The activities suggested below are intended to lead to effective practices in each of these areas.

RECOMMENDED ACTIVITIES (1) *Dissemination, Development, Services*

Disseminating information to employers. Many employers may not have considered hiring severely handicapped workers, or they may have rejected the idea altogether, fearing the handicapped workers would be unsatisfactory employees or that hiring handicapped workers would lead to increased expenses and other complications. These fears can be overcome in part by dissemination of information showing that handicapped workers can, like other workers, be valuable employees who show up on time, perform competently, get along well with others on the job, and whose presence does not cause insurance rates or other employee-related expenses to jump.

Genuine problems do arise in hiring persons with some types of handicap, and employers need to be informed about how such problems have been overcome. For example, an employer may know that quadriplegics are working successfully in data processing, but the employer may justly wonder how they operate the equipment, use bulky manuals, or handle printouts. Employers may also need to know how to obtain technical assistance and about ways in which they can benefit by hiring the handicapped.

Employers need information about past successes, how such successes were achieved, and how these successes can be repeated in the employer's own situation. Determining the most useful information for local dissemination is probably best handled at the program level.

> Example activity. Develop resource kits containing practical tips for dissemination of successful practices.

Initiating personal employer contact with the handicapped. Employers and potential employees must be brought together if placement is to occur. Many means have been developed for doing this, including personal contacts between job placement counselors to identify employer needs and to suggest qualified applicants; "job fairs" in which employers and handicapped job candidates gather at a central location for interviews; employer tours of

workshops and training centers to see potential employees at work; and maintenance of central files of job openings and of potential candidates that serve as clearinghouses. The particular methods used for initiating contact between employers and potential employees are best determined locally.

Example activity. BEH could help local program personnel by identifying effective practices and disseminating guides to setting up similar practices.

(2) *Services, Research*

Providing incentives and technical assistance to employers. Employers need incentives and technical assistance of various kinds as they begin to hire handicapped workers. Incentives might include preferential treatment when bidding on government contracts; reimbursement for all or part of the handicapped worker's salary during an initial period of employment; a trial period for the worker analogous to the 700-hour plan used by Civil Service (with "no fault" dismissal if the worker proves unsatisfactory); an improved public image if the community is supportive of the handicapped; and tax benefits for making equipment and building modifications.

Technical assistance can take many forms, including assistance in assessing the capabilities of handicapped job candidates, advice on how best to make use of the capabilities of the handicapped, help in modifying the work environment, instructing co-workers in techniques for working alongside the handicapped (e.g., basic communication with the deaf or speech impaired or formulation of instructions for the retarded), on-the-job training or work orientation for the handicapped worker, and follow-up "troubleshooting" in the event of performance or interpersonal problems on the job.

Research could be undertaken to identify the effectiveness of various types of incentives and support services in opening employment opportunities. A wide variety of methodologies would probably be required. For example, investigations of the effectiveness of communications training for co-workers could be undertaken as part of a pilot study funded by DHEW under existing programs, whereas the provision of new or expanded tax incentives would require congressional action.

The results of such research could be used by BEH or other federal agencies when making recommendations to Congress or in setting priorities for the support of various activities. The results could also be useful to state and local agencies when tailoring their incentive programs to local conditions.

Example activity. Develop economic models to determine the probable effect of various financial incentives that could be used to encourage hiring of the handicapped. Such a model should show which tax breaks or other incentives would be most attractive to businesses of various types and sizes.

(3) *Research, Services, Dissemination*

Establishing enclaves in industry. In many cases a severely handicapped worker may be able to perform productively only in a special setting or after an extended period of transition into the regular work setting. A special setting might be a sheltered workshop, but it is also possible to perform sheltered work in a setting that is primarily unsheltered. A common example is the contracting of landscaping services by sheltered workshops. In this case, supervision and direction are provided by workshop staff, but the work is performed in a setting that is essentially nonsheltered. Packaging, sorting, manufacturing, and other activities for which workshops often seek contracts could be performed in the facilities of the contracting firm rather than in the workshop but under supervision by workshop staff.

There are many advantages to the handicapped worker in such an approach. It allows interaction with nonhandicapped co-workers, even if only at lunch or when arriving and leaving. It makes work trials in unsheltered settings easier to undertake because shelter staff are readily available to assist if difficulties arise. This allows the handicapped worker to be "eased in" or to be shifted back to sheltered work if the work trial is not successful. It increases the possibility of working at tasks, such as packaging of fragile items, that cannot be done practically in a sheltered workshop removed from the manufacturing site.

Example activity. Undertake feasibility studies to determine the types and sizes of business enterprises for which such an approach seems most feasible. A series of pilot projects could then be undertaken to determine if this approach works in practice, what is needed to implement it, and the characteristics of handicapped workers most likely to benefit. Model programs could also be identified and disseminated.

Topic 4.4 MODIFYING THE JOB OR THE WORK ENVIRONMENT TO ACCOMMODATE THE HANDICAPPED WORKER

Any job is composed of a variety of tasks of varying degrees of difficulty. Because of an inability to perform a few of the many tasks required, an individual may be unable to secure a job or to succeed once a job is secured. Handicapped persons face more (or different) difficulties in this regard than do nonhandicapped workers. The activities suggested below are intended to help make easier or eliminate job tasks that are particularly difficult for the severely handicapped.

RECOMMENDED ACTIVITIES

(1) *Research, Development*

Task analysis. Task analysis is a well-developed technique for identifying what must be done on a job. In performing a task analysis, one characteristically identifies the tasks to be performed, their importance, their frequency of performance, and the activities required to complete each task.* When necessary, such analyses can be carried out in great detail. For example, activities can be subdivided until the specific movements required for each activity are identified, or alternate sequences of activities evaluated to determine which is most efficient for task completion. Research might be undertaken to determine ways in which basic task analysis procedures can best be elaborated to identify aspects of the job or work environment likely to prove troublesome to handicapped people and how troublesome they are likely to be, and to identify the characteristics of a satisfactory solution. The general outlines of such an elaboration are easily imagined: specification of aspects of the job or work environment that may cause particular trouble for persons with various handicapping conditions; procedures to carry out to determine if such problems exist in a particular setting; and procedures for determining how serious the problems are with a view toward recommending job or work site modifications that will eliminate the problem or reduce it to within tolerable limits. Any such activity should, of course, build upon the extensive work that has already been done in task analysis and in job and work place modification to identify the variables that should be of most concern in elaborating the task analysis.

Example activity. Develop a product usable by practitioners that includes instructions for conducting an analysis keyed to persons with particular handicapping conditions; ways in which individual differences

*"Task" refers to undertakings at a level of generality such as frost a cake or develop film; "activity" refers to activities at a level of generality such as measure ingredients, mix ingredients, or prepare emulsion.

should be taken into account in assessing the seriousness of a job or work place difficulty for the client; and suggestions of alternate ways to overcome problems of a particular type.

Job revision. One strategy for overcoming problems resulting from the presence of difficult job tasks is to revise the job so that the tasks are eliminated. One purpose of industrial engineering is to assign tasks among workers in a maximally efficient way. Research might be undertaken to determine how industrial engineering techniques can be applied to increase opportunities for handicapped workers. This is not, however, a simple matter; one cannot simply take those tasks that a particular handicapped worker finds most difficult and assign them to someone else. Doing so might lead to an excessively costly restructuring of work assignments, complaints from co-workers about favoritism, or removal of tasks that are essential parts of the job. Thus, research is desirable that identifies or develops procedures for determining how task reassignments can be made that are minimally disruptive of established routine, that preserve the nature of the job itself, that do not place an unfair burden on other workers, and that do not increase overall work place difficulties. An ancillary project might be undertaken to develop methods for involving other workers in the process of task reassignment in order to gain their cooperation and to benefit from their job expertise.

> Example activity. Develop a product for use by practitioners that includes discussion of how to go about determining satisfactory task reassignments and ways of introducing such reassignments so as to engage the cooperation of other workers.

(2) *Development, Dissemination*

Modifying the work environment. In some cases, it is not practical to eliminate tasks, but it may be possible to alter the activities required to complete each task by modifying the work environment. Many features of the work environment may present difficulties for handicapped persons. These include items related to the job per se such as documents that must be read and understood, and tools and equipment that must be manipulated; physical characteristics of the work place such as architectural barriers; and "psychological" features such as time pressure, general commotion and other distractions, and supervisory styles. Each of these features makes certain demands on the worker as he or she goes about completing work tasks. Thus, manipulate awkward latch, pull open heavy door, and ignore the fuss may be considered as activities that must be completed to perform a task and that should have been identified during the task analysis.

> Example activity. Develop practical guides for eliminating various difficult activities of this sort so that handicapped people can perform their tasks more efficiently. The guides could include topics such as physical plant modifications, special tools for use by the handicapped, tool redesign, methods for eliminating distractions, or tips for training supervisors. The exact topics to be covered and the depth of coverage could be determined as part of a preliminary research study, which might also serve to identify effective techniques that already exist in the topic areas to be included in the guides.

RECOMMENDED PRIORITIES FOR OCCUPATIONAL INDEPENDENCE AREA

Research and Development Topic	Recommended BEH Priority		
	Immediate	Interim	Long-Term
4.1 Fostering Positive Public Attitudes			
(1) *Evaluation, Dissemination* "How to" packages on effective advertising	→	- - - →	- - - →
(2) *Research, Development* Show handicapped in textbooks	→	- - - →	- - - →
(3) *Research, Dissemination* Types of information most useful in attitude change	→	- - - →	- - - →
(4) *Research* Pervasiveness of negative attitudes	→	- - - →	- - - →
(5) *Dissemination* Attitude change information packages to advocacy group	→	- - - →	- - - →
(6) *Research, Development* Effect of mass media on public attitudes	→	- - - →	- - - →
(7) *Research, Services, Evaluation, Dissemination* Techniques for successful integration	→	→	- - - →
4.2 Assessing Aptitude, Interest, and Placement Readiness			
(1) *Development* Instruments for assessing potential for career success	→	→	→
(2) *Dissemination* Information about effective use of assessment instruments	→	- - - →	- - - →
(3) *Research, Dissemination* Techniques for assessing placement readiness	→	→	→
4.3 Finding Jobs and Opening New Employment Opportunities			
(1) *Dissemination, Development, Services* Information for employers about how success can be achieved	→	- - - →	- - - →
(2) *Services, Research* Incentives and technical assistance for employers	→	→	→
(3) *Research, Services, Dissemination* Establishing enclaves in industry	→	→	- - - →

Recommended Priorities for Occupational Independence Area (continued)

Research and Development Topic	Recommended BEH Priority		
	Immediate	Interim	Long-Term
4.4 Modifying the Job or Work Environment			
(1) *Research, Development* Task analysis techniques directly relevant to the handicapped, job revision techniques based on task analysis techniques	→	→	- - - →
		→	→
(2) *Development, Dissemination* Work environment modification techniques based on task analysis results		→	→

Key: Strong Emphasis ———
Moderate Emphasis - - - - - -
No Emphasis blank

Chapter 5 Socioemotional Adjustment

This chapter deals with research and development needs related to the individual handicapped person and her or his social and emotional adjustment to the environment. Severely handicapping conditions raise a variety of problems and barriers for the individual in making a satisfactory social and emotional adjustment to training and work. These include the attainment of basic social skills, self-acceptance, accurate self-appraisal, and realistic career aspirations. Relating to others requires social acceptance and the ability to accept healthy assistance. Even as a worker, the handicapped person must often function within a framework of social assistance.

Major topics addressed in this chapter are as follows:

5.1 Developing self-esteem, accurate self-appraisal, and realistic vocational and career aspirations

5.2 Developing basic social skills required for working with others

5.3 Coping with the realistic needs for assistance and dependence on significant others and society

Figure 4 is a categorization of recommendations (Groups x Activities) for Socioemotional Adjustment according to the theoretical model discussed in Chapter 1.

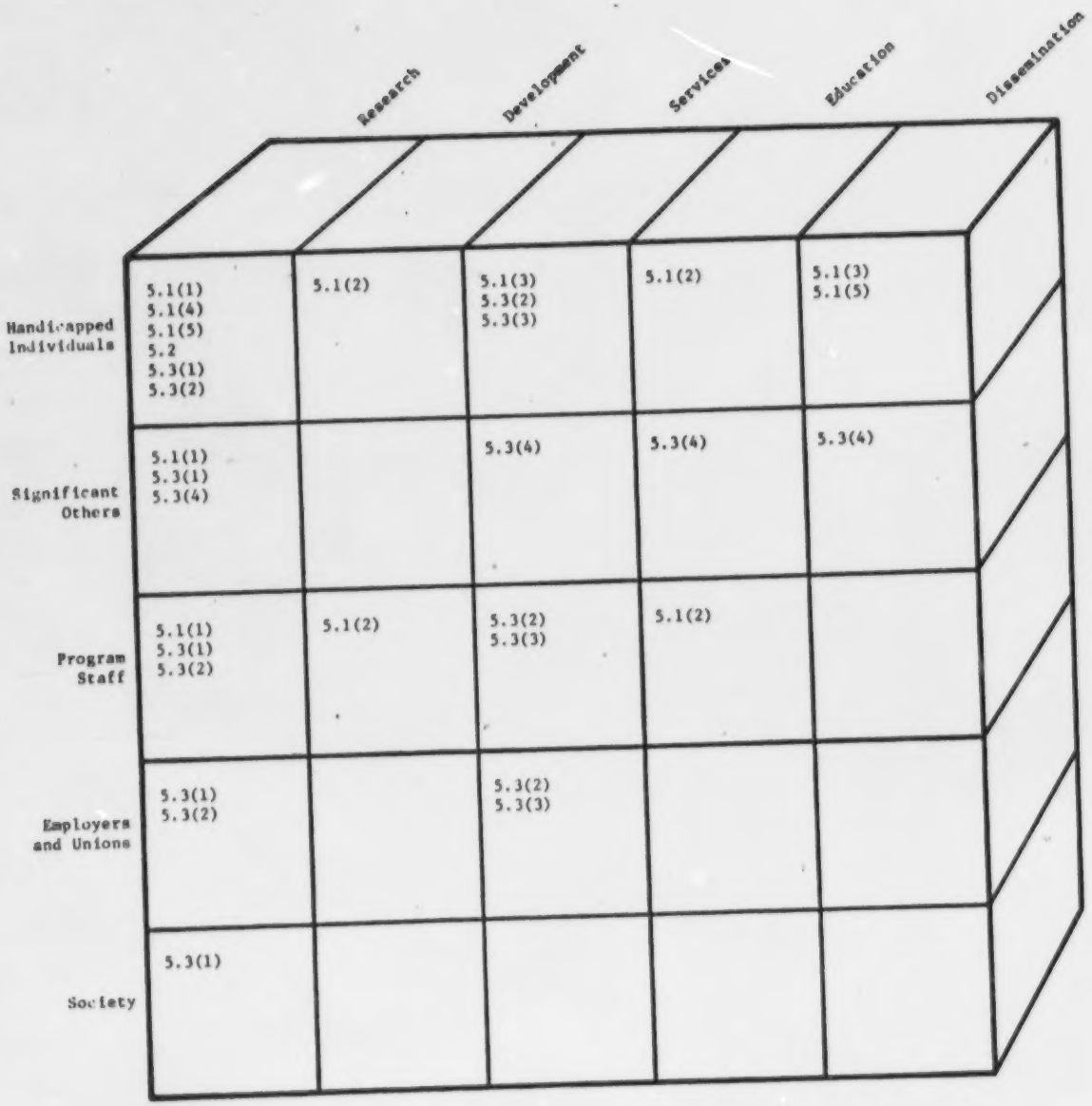

Figure 4. Categorization of recommendations for Socioemotional Adjustment.

Topic 5.1 DEVELOPING SELF-ESTEEM, ACCURATE SELF-APPRAISAL, AND REALISTIC VOCATIONAL AND CAREER ASPIRATIONS

Self-esteem refers to the evaluation the individual makes and customarily maintains about self--it expresses an attitude of approval or disapproval and indicates the extent to which the individual feels capable, significant, successful, and worthy (Coopersmith, 1967). Accurate self-appraisal refers to the ability of the individual to assess his or her own capabilities realistically in relation to the abilities of others, especially in regard to capabilities required for the performance of work in a competent and competitive manner. Realistic vocational and career aspirations refers to the expected level of career achievement a person may be able to attain. It requires a person to make a realistic estimate of what he or she can accomplish. If these estimates are unrealistically high, failure will result; if they are too low, potential will be wasted.

RECOMMENDED ACTIVITIES

Self-Esteem

Many observers believe that high self-esteem on the part of the handicapped worker is critical to self-fulfillment and happiness, while low self-esteem is a major cause of poor performance in training and on the job. Low self-esteem is thought to cause lowered career aspirations and an inability to perform accurate self-appraisal. A number of research questions can be generated that focus on the antecedents of self-esteem and shed light on their implications for programming of the severely handicapped.

(1) *Research*

Antecedents of self-esteem. More knowledge is required to identify the antecedents of self-esteem for handicapped workers and the extent to which these antecedents differ from those of nonhandicapped workers. What effect do severely handicapping conditions have upon the development of self-esteem, accurate self-appraisal, and level of aspiration of the individual? What interventions can prevent the development of poor self-esteem, and what intervention can arrest the condition once it has begun? To what extent does poor self-esteem result from such variables as overprotection, rejection by significant others, repeated failure, lack of encouragement and support, neglect, low expectations on the part of others, or lack of knowledge about the handicapped by the public? To what extent can poor self-esteem be prevented by early programming; enriched experience with the world of work; raising the expectations of significant persons such as parents, teachers, rehabilitation personnel, and employers; or informing the public about various handicapping conditions to increase awareness of the needs and capabilities of handicapped persons?

Effect of self-esteem on employment. Another long-range research area is to determine the effect of level of self-esteem on obtaining and succeeding in employment. While increased self-esteem may be important in its own right for personal satisfaction, does low self-esteem in fact act as a barrier to employment? If it is a significant barrier, then additional knowledge is required about where, when, and how it is a barrier, and what can be done, by whom, and in what situations to overcome the barrier.

Crisis intervention. More immediate techniques are required to minimize the effects of poor self-esteem once it is established. What can be done to intervene in a crisis during training or employment? To what extent is supportive counseling effective in bolstering self-esteem? To what extent can the techniques of assertiveness training be effective in minimizing low self-esteem? To what extent can actual employment be an antidote to poor self-esteem? Is a concept of programmed employment (analogous to programmed instruction) possible to assure a continuing chain of successful work experiences and a minimization of failure? Is it more effective to concentrate on modifying the unwanted behavior of the handicapped person rather than the internally held ideas about self?

> Example activity. Undertake a cross-sectional study of a variety of programs for the severely handicapped to identify those practices or factors critical to the development of self-esteem in the handicapped person. Such practices or other factors that should be considered are systematic programming to avoid failure; individual self-planning, including goal setting and strategy solution; expectations of staff members regarding the competency of the handicapped person; and mainstreaming practices in public schools or in business and industry.

(2) *Evaluation, Development*

Develop evaluation models and devices. The development of evaluation models is required to assess the level of self-esteem of the handicapped worker and its probable impact on job performance. Evaluation devices should generate intervention strategies, methods, or programming techniques that can be utilized to prevent, arrest, or minimize the effects of an inadequate self-concept.

> Example activity. Attention should be given to the development of program evaluation methods that include student outcome measures of the development of adequate self-esteem, appropriate career aspirations, and realistic self-appraisal. It would also be useful to evaluate the impact of various parts of a program upon the development of self-esteem in handicapped persons.

Accurate Self-Appraisal

Accurate self-appraisal is related to level of self-esteem and is an important determinant of occupational choice and motivation. A basic assumption underlying the concept of accurate self-appraisal is that the individual is the key decision maker in occupational choice. Sound vocational and educational planning must stem from knowledge of reliable methods of self-appraisal and from skill in the use of these methods. Such planning also

requires understanding and use of reliable sources of information about the self and the working world, and skill in using information gathered from these sources. Preparation for succeeding in an occupation requires the development of the meaning of work in one's life. Wise career decisions also require awareness of the factors that may influence these decisions, such as socioeconomic status, educational opportunities, and complex motives and desires.

(3) *Services, Dissemination*

Guidance models. For severely handicapped persons capable of self-appraisal and decision making, guidance models need to be adapted or developed, with the best ones identified and disseminated.

> Example activity. Develop guidance programs that provide handicapped persons with practice in making self-assessments in a variety of performance situations and provide adequate reality testing for formative feedback.

(4) *Research*

Antecedents of accurate self-appraisal. Long-term research needs to be conducted into the antecedents of accurate self-appraisal for the severely handicapped, which takes into account the impact of such variables as physical or communication handicaps on self-appraisal.

> Example activity. Conduct longitudinal studies of persons with severe communication handicaps (or environmental or skill deficits) to determine the impact of these conditions on realistic self-appraisal. Determine what strategies may be required to strengthen accurate self-appraisal abilities.

Aspirations

Vocational and career aspirations--so important to career choice and occupational success--are determined by such factors as intelligence, socioeconomic status of the family, pattern of parenting, value system of social class, and geographical location. For the severely handicapped person, the handicapping condition itself undoubtedly affects the level of career aspiration. A poorly developed self-concept or inaccurate self-appraisal of skills leads to the development of inappropriate levels of vocational and career aspirations. The relatively restricted experience of the severely handicapped person needs to be augmented by interventions that stimulate the development of more appropriate levels of aspiration.

(5) *Research, Dissemination*

Understanding the development of career aspirations for the handicapped. Longitudinal studies are required to understand better the development process of career aspiration and how and what should be done to help the handicapped worker develop appropriate career aspirations. Due to the long-term developmental nature of levels of aspiration, emphasis should be placed on early identification of faulty aspirations and on determining intervention

strategies. Special emphasis should also be placed on determining interventions for persons well beyond the chronological age when preliminary or foundational developmental tasks related to career aspirations are usually mastered.

Example activity. Effective programming models for facilitating the development of realistic career aspirations need to be identified, and then effective procedures should be disseminated.

Topic 5.2 DEVELOPING BASIC SOCIAL SKILLS REQUIRED FOR WORKING WITH OTHERS

Many observers note that severely handicapped persons often fail in occupations or are unable to obtain employment in occupations not because of inadequate occupation-related skills, but because of uncomfortable social tensions between handicapped and nonhandicapped workers, partly due to inadequate social development of the handicapped. For nonhandicapped persons, institutions such as public schools are available as a social laboratory. The school, for example, provides opportunities for working in groups and for learning strategies and attitudes needed for cooperative participation as citizens in a community and in the work place. Specifically, the school provides opportunities to (1) satisfy and become responsive to social motives, (2) learn the techniques of group action and problem solving, (3) use the observations of one's peers for self-improvement, and (4) find and develop differentiated social roles.

The severely handicapped often do not participate in these experiences, thereby missing the socialization process of the nonhandicapped. Instead, the handicapped person may be subjected to a highly deprived social learning environment or to a distorted one such as in an institutional setting.

RECOMMENDED ACTIVITIES

Research

Determining effects of handicapping conditions on socialization. Long-term basic research into the socialization of severely handicapped persons might concentrate on answering such questions as: What effect do specific handicapping conditions have upon socialization? What effect does restricted or biased experience resulting from the handicapping condition have upon the socialization of the child? What effect does the socialization presently provided by our social system have upon severely handicapped persons preparing for and obtaining employment? What socialization procedures, methods, or programs are effective in improving the social and emotional development of the severely handicapped relative to occupational independence and in what situations are these strategies useful?

Example activity. Conduct a longitudinal study of persons with profound communication, skill, or environmental barriers in order to understand the impact of these handicaps upon the socialization process of the individual. Develop strategies to arrest faulty development. (For further discussion of these barriers, see the VOTAP handbook, Vocational Opportunties, pp. 21-45.)

Topic 5.3 COPING WITH THE REALISTIC NEEDS FOR ASSISTANCE AND DEPENDENCE ON SIGNIFICANT OTHERS AND SOCIETY.

The handicapped require more individual assistance than typical nonhandicapped persons. Often, it is difficult for the helping person as well as for the handicapped individual to draw a distinction between healthy, appropriate assistance and unhealthy dependency relationships.

Parents often have unreasonable expectations or concerns about their handicapped children and their children's future. Some parents, for example, are preoccupied with the enormous odds their child will face in life. Society's attitudes toward the handicapped help to reinforce the notion that their child is different and cannot succeed in the normal way. With such an attitudinal framework, some parents accept with resignation the pronouncements of anyone, professional or otherwise, which inform them that they can do little or nothing to improve the chances of their child for occupational independence. Such discouragement may lead to unreasonably low parental expectations for the development of the handicapped child--that the child should be protected, should remain within the security of the family, and should not be encouraged to work.

Similar expectations on the part of society, particularly employers, labor unions, and nonhandicapped employees may cause severely handicapped workers to be thought of as permanent members of a surplus labor force; hence, few really rewarding job situations are developed for them. Many respondents to the VOTAP survey pointed out the need for employers, parents and guardians, and nonhandicapped employees to revise their expectations and therefore provide more healthy and productive assistance.

RECOMMENDED ACTIVITIES (1) *Research*

Defining healthy assistance. Long-term research should be conducted into defining the difference between healthy assistance and unhealthy dependent relationships for severely handicapped persons. In some ways this problem is no different for the severely handicapped than it is for the nonhandicapped. All persons must work out comfortable independent and dependent relationships with other persons. The problem with the handicapped may be that the handicapping condition causes both the handicapped person and those who work with him or her to seek and provide relationships that discourage optimum independence and personal competence. Research that clarifies appropriate roles for handicapped persons and those persons working with them would be useful.

Example activity. Develop programming practices for the severely handicapped that focus primarily on the outcomes of establishing independence and maximum use of personal resources. Alternatively, identify ongoing programs effective in achieving these outcomes and disseminate the programming techniques.

(2) *Research, Services*

Improving the image as productive workers. Long-term research might be undertaken to develop methods that enable handicapped workers to be seen as more productive. The focus of this research should be on developing the full potential of the individual rather than focusing on the disability or limitations.

> Example activity. Design programming to develop genuine competencies in handicapped persons that are of worth to potential employers and salable in the competitive market.

(3) *Services*

Moving from welfare support to self-support. Another problem that severely handicapped workers face in gaining competitive employment involves moving from welfare or altruistic support of concerned individuals and groups into competition with regular employees. Business, labor, and industrial leaders are sometimes willing to support projects serving the severely handicapped as long as they are of a philanthropic or welfare nature; however, once a handicapped person begins to compete legitimately in the employment arena of the nonhandicapped, this philanthropic support is often withdrawn--sometimes too quickly for the handicapped worker to make a complete transition into competitive employment. Methods and means are required for working with the handicapped individual and employers to enable the handicapped worker to move from welfare support into competitive employment without unduly threatening the handicapped worker, the nonhandicapped worker, and labor unions who fear the handicapped may compete at lower than union wages.

> Example activity. BEH could help local program personnel by identifying effective practices and disseminating guides to setting up similar practices.

(4) *Research, Services, Evaluation, Dissemination*

Working with families. Effective methods of working with families of severely handicapped persons need to be identified and disseminated. Research should address such questions as the following: What is the most effective role for parents and family members to take in the vocational training and career choice of severely handicapped persons? What methods are most effective in demonstrating to parents and other concerned persons the potentials of the handicapped individual and what methods are most effective in developing these potentials? And, particularly, what can the family and other concerned persons do to foster development rather than hinder it?

> Example activity. Parental intervention programs should be identified, and the impact of parent and family involvement at the various stages of the rehabilitation process should be investigated. What training or counseling programs for parents are effective? And can they be transferred to other programs?

RECOMMENDED PRIORITIES FOR SOCIO-EMOTIONAL AREA

Research and Development Topic	Recommended BEH Priority		
	Immediate	Interim	Long-Term
5.1 Developing Self-Esteem, Accruate Self-Appraisal, and Realistic Vocational and Career Aspirations			
(1) *Research* Antecedents of self-esteem, effect of self-esteem on employment, crisis intervention	----------	----------	----------
(2) *Evaluation, Development* Develop evaluation models and devices	————		
(3) *Services, Dissemination* Guidance models	————	----------	
(4) *Research* Antecedents of accurate self-appraisal	----------	----------	----------
5.2 Developing Basic Social Skills			
Research Determining effects of handicapping conditions on socialization	----------	----------	----------
5.3 Coping with Realistic Needs for Assistance			
(1) *Research* Defining healthy assistance	————	----------	
(2) *Research, Services* Improving the image as productive workers	————	————	----------
(3) *Services* Moving from welfare support to self-support	————	----------	----------
(4) *Research, Services, Evaluation, Dissemination* Working with families	————	----------	----------

Key: Strong Emphasis ————
Moderate Emphasis ---------
No Emphasis blank

Chapter 6 Physical Accommodations

This chapter deals with research and development related to accommodating the physical needs of the severely handicapped. Physical barriers are largely a problem for a specific group of severely handicapped persons--those with orthopedic and communications disabilities. However, they can also be a problem to other severely handicapped persons such as the severely retarded. These problems relate to self-care, obtaining assistive devices that lessen the effects of certain disabling conditions, gaining access to and utilizing facilities for the maintenance of protheses, and the personal use of physical facilities. These problems are substantive. Obtaining housing adapted to the needs of the handicapped person, for example, is very important to that person's standard of living and comfortable life style. Obtaining transportation to and from work is often a critical problem to the handicapped and a serious barrier to productive employment.

This chapter summarizes recommendations for physical accommodations of handicapped persons that seem appropriate for BEH. However, the massive nature of these problems must be recognized and solutions coordinated on a much larger basis than with only a single agency of government.

Major topic areas addressed in this chapter are as follows:

6.1 Increasing the availability of assistive devices

6.2 Increasing the accessibility of public transportation vehicles, stations, and associated facilities that are often difficult or impossible for physically handicapped people to use

6.3 Designing housing and working areas specifically for the needs of handicapped persons

Figure 5 is a categorization of recommendations (Groups x Activities) for Physical Accommodations according to the theoretical model discussed in Chapter 1.

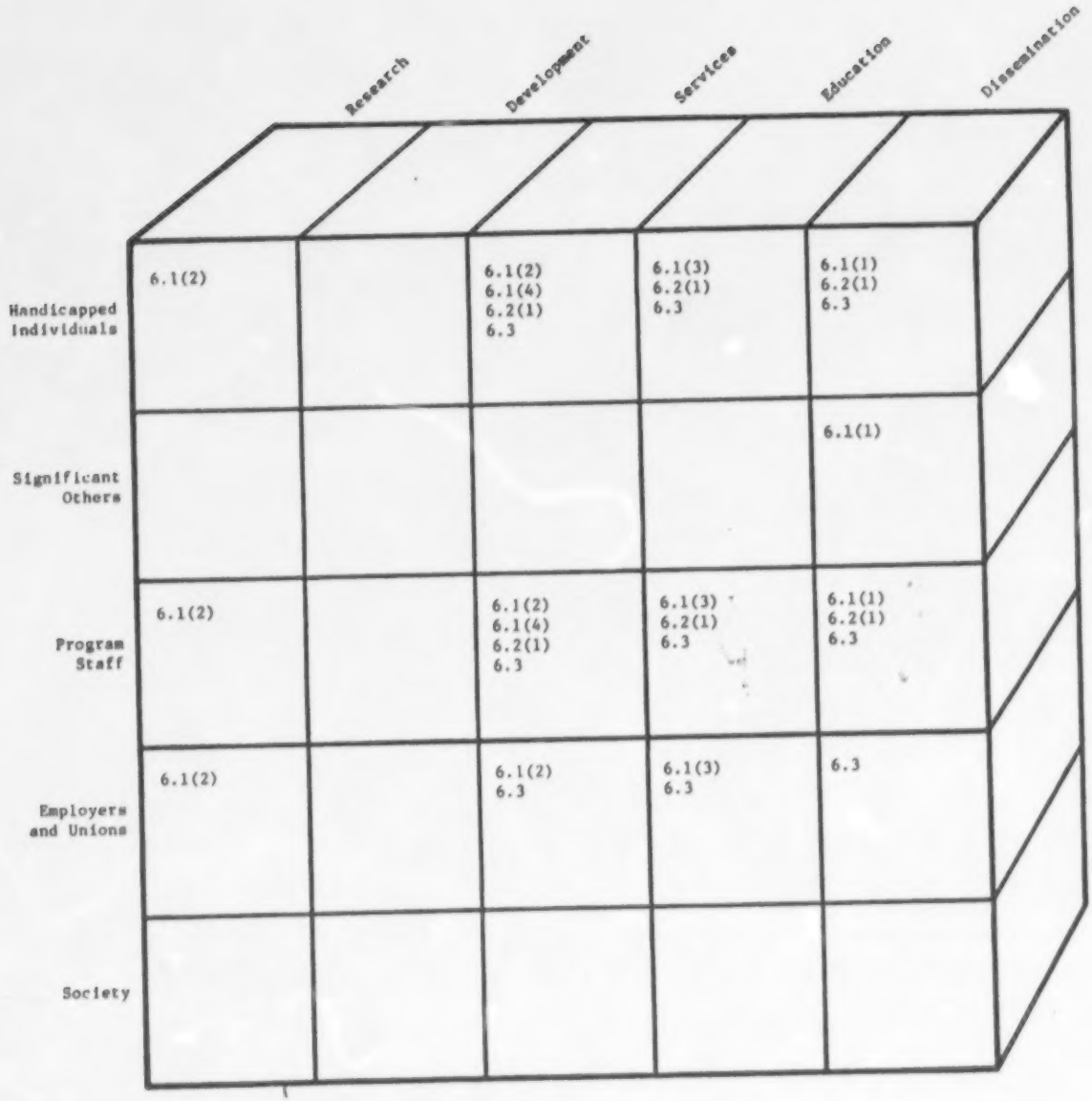

Figure 5. Categorization of recommendations for Physical Accommodations.

Topic 6.1 INCREASING THE AVAILABILITY OF ASSISTIVE DEVICES

A variety of specialized aids and devices make it possible for the severely handicapped to do otherwise difficult or impossible tasks. Such devices may include "talking calculators," machines that "convert" ink-print to other modalities, tools with braille markings for those with blindness; and advanced prostheses and sophisticated switching systems that use everything from puffing and sucking on a tube to muscular electrical potential to give control to those with severe physical impairments. Many of these devices and their applications are discussed in another volume of this series, Vocational Opportunities.

This section is concerned with recommendations that can lead to the wider dissemination of information about and better use of assistive devices.

RECOMMENDED ACTIVITIES

Utilization

If the best use is to be made of assistive devices, information about their capabilities, availability, and methods of use must be widely available, and procedures must be established to assure that the individual is provided with the most appropriate item for the job to be performed.

(1) *Dissemination*

Catalogs, centralized data base. Excellent catalogs have been developed that describe the function and use of many of the devices currently available (e.g., Trace Center, 1974, for communications devices; American Foundation for the Blind, 1973, 1976; and Sensory Aids Foundation, forthcoming, for the blind and visually impaired). Newsletters, brochures, conference presentations, and professional publications are used to alert people to new devices as they become available. These are valuable but require the user to spend a large amount of time keeping up with reports emanating from a variety of sources. The work of finding the best aid for a particular problem would be easier if information could be quickly obtained from one well-organized, comprehensive source.

> Example activity. Conduct a feasibility study of establishing and maintaining a centralized data base containing frequently updated information about all types of aids and their availability, cost, and uses. The data in such a base could be accessed using a computerized retrieval system such as those now used with ERIC and other data bases. Individuals or small agencies without terminals could submit requests for information to regional centers. Information about such a service could easily be made available to rehabilitation agencies and advocacy groups through existing information dissemination channels; these organizations

could then alert their clients or members to the existence of the service.

The feasibility study would determine the information to be included, the procedures for and cost of establishing and updating such a data base, and the practicality of adding it to current retrieval systems and of making it widely accessible to potential users.

(2) *Research, Services*

Analysis of user-environment-aid system. If a user is to benefit fully from a prosthesis or other aid, two conditions must be met: the device must be effective in helping the user deal with the environmental problem, and the individual must be trained to use the device advantageously. These conditions imply a careful analysis of the user's capabilities and limitations, of tasks to be performed, and of the situations in which the tasks are to be performed. Alterations should be made in the device if the desired results are not achieved.

If the ideal situation is to be realized, rehabilitation personnel must gain sophistication in conducting analyses of the demands placed on devices by a particular user-environment combination, in training the user, and in assessing the success of the user in mastering the environment through use of the device. Some institutions and conscientious vendors undertake such procedures now, but others are unwilling or unable to do so.

> Example activity. Review thorough systems approaches, such as those advocated by the National Institute for Rehabilitation Engineering, for the purpose of identifying key steps in assuring that the best device is selected and proper use made of it by the handicapped individual. Once these key steps are identified, train rehabilitation workers in analyzing the user-environment-specialized aid system to arrive at optimal selection of aids. Such analysis, coupled with thorough instruction for the handicapped person who will use the device, should be standard procedure before a user is fitted or supplied with an orthosis or other aid.

Affordability

Specialized aids and devices are frequently unaffordable by handicapped persons. Rehabilitation agencies supply some aids, but funds are limited and priority is often given to those persons who seem most likely to obtain employment once an aid is supplied. In practice, this has often meant that the less severely handicapped are served first and the more severely handicapped served second or not at all.

(3) *Evaluation*

Aids may increase employability. The frequent emphasis on placing clients has led rehabilitation agencies to concentrate on those most likely to be able to find work once they have received services. Unfortunately, this has worked to the detriment of the severely handicapped, since the assumption is

often made that the less severely handicapped are ipso facto better risks.* This assumption needs to be reevaluated in light of the systems approach to the selection and development of aids suggested above. In particular, if a sophisticated analysis reveals that a severely handicapped individual could succeed if provided with an aid, then that person would be a good risk, and the criterion of spending money where it is likely to do some good will be satisfied. This approach will shift the criterion for judging suitability from the severity of the handicapping condition to the results of a sophisticated analysis of the potential of the worker-environment-aid system. As described earlier, this approach will also require new expertise in systems analysis on the part of rehabilitation personnel.

Example activity. Conduct a pilot study project to develop such assessment procedures and to determine if they can be applied successfully to identifying options for persons thought to be unemployable.

(4) *Services*

Financing the purchase of assistive devices. Special aids and devices are often expensive and adequate financing is needed to pay for them. One route is to buy aids with public funds on the assumption that the investment will be more than repaid by the individual in taxes and increased economic activity, in addition to the savings that result from decreased welfare support. While predicting cost trends is difficult, the expense of evaluating the severely handicapped person and providing a suitable aid will probably increase as more people demand services and as the variety and sophistication of aids increase.

Example activity. Conduct a cost analysis to determine the financial implications of technological advances and probable service demands. Following this analysis, models for providing services economically should be investigated. Tax deductions for employers and handicapped persons, as well as direct purchase by governmental agencies, should be among the options explored. Models of service should be tried out on a limited basis and the most economical and effective procedures disseminated for large-scale adoption. Models should specify needed staff skills, assessment and procurement procedures, facilities requirements, and any other factors that prove relevant during the tryouts.

*This discussion should not be taken to suggest that, on the whole, severely handicapped people are as likely to become employable when equipped with prostheses and other aids as are the less severely handicapped. The point is rather to direct attention to the probable benefit to an individual of obtaining an aid.

Topic 6.02

INCREASING THE ACCESSIBILITY OF PUBLIC TRANSPORTATION VEHICLES, STATIONS, AND ASSOCIATED FACILITIES THAT ARE OFTEN DIFFICULT OR IMPOSSIBLE FOR PHYSICALLY HANDICAPPED PEOPLE TO USE

Accessible transportation can make a difference between meaningful work and mere subsistence, between sharing in community activities and being isolated. A comprehensive listing of development strategies to overcome this barrier can be found in another handbook of this series, Vocational Opportunities. These strategies include educating architects, designers, contractors, and developers about the mobility needs of the handicapped so that they can design barrier-free environments. Recommendations were also made for public transportation to be designed so that vehicles are accessible to the handicapped. It was recommended that the specific guidelines for the design of transit buses, school buses, and other vehicles (developed by the Franklin Institute Research Labs and published by the U.S. Department of Transportation, Urban Mass Transportation System) should be distributed. It was recommended that communities consider providing vans, buses, or other vehicles designed especially for the disabled as part of their rehabilitation, social service, and employment services. It was also suggested that laws regarding the removal of barriers and the provision of special accesses be enforced.

RECOMMENDED ACTIVITIES

Solutions to the problem of providing transportation for severely handicapped persons are somewhat outside BEH's area of concern. While BEH may not be influential in this area, a few recommendations can be considered that are within the educational and training purview.

Services, Evaluation, Dissemination

Training for use of public transportation. It would be useful to investigate training procedures that teach the severely handicapped how to use available public transportation or appropriate pilot transportation. What are the most efficient methods of training the physically handicapped to use public transportation systems? What are effective and efficient ways to train handicapped persons with communication disabilities to use transportation systems? What can training programs do, how can they best do it, and in what circumstances should they provide transportation? What can employers do and how can they be motivated to develop systems to transport handicapped workers? What can handicapped persons and their families or other concerned persons do to provide themselves with transportation, in what situations, for what purposes, and at what cost?

Training and employment for the homebound. Another topic for investigation would be to determine the extent to which vocational training or employment can be provided the homebound. If the handicapped person is unable to go to

a place of training or work, then when, where, and how is it possible to provide vocational training programs or work for these persons?

Example activity. BEH could help local program personnel by identifying effective practices and disseminating guides to setting up similar practices.

Topic 6.3 DESIGNING HOUSING AND WORKING AREAS SPECIFICALLY FOR THE NEEDS OF HANDICAPPED PERSONS

Many severely handicapped persons find moving about their own homes and places of employment to be a difficult problem. A number of objects, including elevators, are difficult or impossible to use. The handicapped are inhibited by bathroom layouts, table and desk layouts, and stairs. Also many of the physically disabled are unable to work and move about the average business or industrial setting because of the placement of light switches, elevator buttons, and drinking fountains.

RECOMMENDED ACTIVITIES

Another handbook in the series--Vocational Opportunities--provides specific suggestions for development of programs and services to aid in the solution of architectural problems. As with transportation barriers, many obvious solutions fall outside the purview of BEH, particularly those relating to building design and regulations.

Services, Evaluation, Dissemination

Training environments. Research efforts should be directed toward development of optimal environments for training the severely handicapped. These environments should accommodate to the maximum extent the handicapping condition of the individual and be designed to maximize individual learning potential. Methods should be investigated of educating employers about simple modifications that can be undertaken to improve the working environment for handicapped persons. How can modifications be made as inexpensively as possible? How can funding be obtained to make these accommodations in the facilities and buildings?

Example activity. Develop employer training programs or "how to" guides for small business employers to enable them to modify the working environment in their business or industry to help severely handicapped persons to overcome attitude, skill, communication, and environmental barriers. (For further discussion of these barriers, see the VOTAP handbook, Vocational Opportunities, pp. 21-45.)

RECOMMENDED PRIORITIES FOR PHYSICAL ACCOMMODATION AREA

Research and Development Topic	Recommended REH Priority		
	Immediate	Interim	Long-Term
6.1 Increasing the Availability of Assistive Devices			
(1) *Dissemination* Computer-based retrieval system for information about devices		→	→
(2) *Research, Services* Sophisticated assessment techniques of user-environment-aid system	→	→	- - - →
(3) *Evaluation* More sophisticated assessment of who is likely to benefit from an assistive device	→	→	- - - →
(4) *Services* Models of cost-effective strategies for providing aids and devices	→	- - - →	- - - →
6.2 Increasing Assessibility to Transportation			
Services, Evaluation, Dissemination Training for use of public transportation, training and employment for the homebound	→	→	→
6.3 Designing Housing and Work Areas			
Services. Evaluation, Dissemination Training environments	→	→	→

Key: Strong Emphasis ———
Moderate Emphasis - - - - - -
No Emphasis blank

Chapter 7 Summary

RESEARCH EMPHASES

The overall goal of the VOTAP project is to improve vocational placement and training opportunities for the severely and profoundly handicapped. The recommendations in this chapter can be drawn together into three emphases to be addressed by the Bureau of Education for the Handicapped and other interested researchers. The first emphasis is the need to make an impact on the controllers of the job market. The second emphasis concerns the development of technical resources to enable the severely and profoundly handicapped to obtain training and employment. The third major emphasis is the need to demonstrate effective practices and to disseminate information about these practices as widely as possible.

Impact on Controllers of the Job Market

Three problems in this emphasis area require immediate attention. The first is changing public attitudes toward the severely handicapped. Public attitudes are now stereotypic and discriminatory. A second immediate concern is the involvement of business, labor, and industrial personnel in programming for the severely handicapped. This is seen as essential to the establishment of relevant training and as the main vehicle by which handicapped personnel can be placed in competitive jobs. The third problem is the need for coordination of community resources. Programs serving the severely handicapped are not working as effectively as they would if community resources were coordinated into interagency systems with delineated roles supportive of that system.

Technical Resources

This high priority research and development emphasis refers to the need for technical breakthroughs that help to prepare severely handicapped persons for the job market. Within this emphasis there are two basic areas of concern. First, continued research needs to be directed toward the development of improved instructional techniques. More effective and efficient instructional methods are needed to prepare the handicapped for work. Testing and evaluation procedures also need to be improved. Second, attention needs to be given to the adaptation of jobs in competitive employment to the needs of the severely handicapped. Job redesign, environmental redesign, and keeping up with the technological improvements in assistive devices is a high priority concern.

Demonstration and Dissemination of Effective Practices

Another pressing need is for effective programming practices to be developed or identified and then evaluated for effectiveness. Once procedures have passed rigorous evaluation criteria, they need to be effectively packaged and disseminated utilizing the most modern and efficient methods available.

RECOMMENDATIONS SUMMARY

The following is a list of recommendations summarized from the previous chapters of this book. These recommendations are listed by Topic areas.

Educational Programming

3.1 Increasing information about services and opportunities available to the handicapped and their parents or guardians

(1) Develop outreach information dissemination and advocacy systems to identify handicapped persons. Inform the handicapped or their guardians about these services; provide training where required in locating services; provide counseling in exploring services; and provide advocacy (ombudsman) services where required to obtain appropriate training and occupational placement.

(2) Undertake research that leads to the development, evaluation, and dissemination of effective methods of utilizing the mass media to provide information about services available to the handicapped.

(3) Establish large-scale information exchange systems for handicapped persons and guardians. These systems would collect, catalogue, and retrieve information about services and enable an individual to interact with the informational system according to personal barriers and personal decision-making needs.

3.2 Coordinating services and encouraging the collaboration of all potential community resource personnel

(1) Develop total community systems that organize and coordinate services into cooperative programs with delineated roles.

3.3 Improving evaluation of students on a variety of dimensions

(1) Develop measurement and assessment devices that comprehensively assess programming concerns relevant to the handicapped (self-care, psychological and medical status, and socioemotional and cultural factors) with a view to identifying occupations in which the handicapped person may succeed.

(2) Develop assessment devices that evaluate handicapped persons in a more nondiscriminatroy way. Such assessment devices are particularly necessary when used for selection into training or job placement.

3.4 Instituting effective methods for program evaluation

(1) Identify both programs and specific practices that have been demonstrated to be effective. Present these to the Joint Dissemination Review Panel (or some other appropriate review procedure). Prepare project information packages (PIPs) for dissemination to programs serving the severely handicapped.

(2) Develop evaluation models for program or practice impact that deal with the global and diverse nature of programs serving the severely handicapped. These models should be adaptable to real

world needs for program flexibility. They should be easily implemented by unsophisticated program staff and they should be as economical in the consumption of personal and financial resources as possible.

(3) Establish a center for the collection and dissemination of information about programs and practices that have been demonstrated to be effective by rigorous evaluation procedures.

3.5 Increasing prevocational experience and work adjustment skills to help handicapped persons succeed in employment

(1) Undertake basic research, including longitudinal studies, in order to define and clarify the development of work-related developmental tasks for severely handicapped persons.

(2) Identify effective programs or specific practices that facilitate the development of prevocational and work adjustment skills in severely handicapped people. Effectiveness should be determined by rigorous evaluation procedures. Disseminate information about these programs or practices by project information packages (PIPs) or through national information exchanges.

(3) Investigate the advisability of making prevocational training mandatory for handicapped children in programs supported by public funds.

3.6 Increasing the emphasis on training competencies relevent both to the goals of handicapped students and to the job market

(1) Undertake research to clarify the goals and aspirations of severely handicapped persons in order to improve their life quality and sense of personal fulfillment.

(2) Develop programming that utilizes task analysis of potential jobs as an essential component of curriculum planning where competitive employment is the major goal.

(3) Increase the variety of work available in sheltered workshops for handicapped persons most appropriately suited to a sheltered work environment.

3.7 Developing appropriate curricula and increasing the efficiency and effectiveness of instructional methods

(1) Conduct basic research into more efficient training and instructional techniques, particularly for use with those handicapped groups who find learning difficult.

(2) Develop and evaluate vocational education programs that appropriately utilize the clustering approach to vocational training and that concentrate on teaching systems of gaining information and

generalizable skills that can be transferred into a variety of potential job situations.

(3) Identify effective programs and practices that utilize business, labor, and industry in the instructional process. Effectiveness should be determined by rigorous evaluation procedures such as those required by the Joint Dissemination Review Panel. Information about effective programs or practices should be widely disseminated through the use of program information packages or other appropriate dissemination procedures.

(4) Identify and/or develop instructional programs utilizing parents and guardians in an effective way. Prior to dissemination of information about such programs, effectiveness should be demonstrated by rigorous evaluation procedures.

3.8 Obtaining sufficient career information and awareness to make appropriate career decisions

(1) Develop and/or identify effective career education programs for the severely handicapped. Prior to dissemination, effectiveness should be demonstrated by rigorous evaluation procedures. Because of the diffuse nature of career education and the flexibility required in most practical situations to implement career education practices, special evaluation models may be required for satisfactorily demonstrating such effectiveness.

3.9 Investigating the effects of mainstreaming

(1) Identify programs and situations in which mainstreaming is used, and conduct research to determine its advantages and disadvantages.

(2) Identify effective mainstreaming practices appropriate for severely handicapped persons. Effectiveness should be determined by rigorous evaluation procedures and effective practices should be disseminated.

(3) A longitudinal study or retrospective study should be undertaken to identify programming methods associated with severely handicapped persons who have successfully achieved a high degree of normalization and deinstitutionalization.

3.10 Improving the level of appropriate skills or background of staff relative to programming objectives

(1) Develop instructional programs in higher education that specialize in the training of staff who work with the severely handicapped. Such instructional programs should synthesize relevant course work from special education, rehabilitation, business management, instructional design, evaluation, and community liaison.

(2) Develop and/or identify programming models that emphasize multidisciplinary team approaches to vocational training and placement of the severely handicapped. Such models may emphasize the use of rehabilitation counselors, social workers, vocational instructors, and support personnel coupled with the availability of sheltered and competitive employment.

(3) Support the development of inservice training models that maximize the benefits of traditional preservice and inservice programs.

3.11 Smoothing the transition from training programs or services into the working environment

(1) Identify, through rigorous evaluation techniques, effective procedures for transferring skills gained in training programs to paid employment. Training should include skills and attitudes basic to successful employment. Procedures for transferring skills should address the problem of convincing employers that handicapped persons can be productive workers.

(2) Programs should be developed within business and industry to allow the employer to take full responsibility for programming services. Such programs would shift the focus of programming responsibility from rehabilitation and educational institutions to the employer.

Occupational Independence

4.1 Fostering positive public attitudes toward the handicapped in the work place

(1) Identify effective procedures for altering public attitudes toward the handicapped and disseminate "how-to" packages describing these procedures to appropriate agencies serving the handicapped.

(2) In textbooks and other classroom materials, encourage the portrayal of handicapped people as full participants in society.

(3) Determine the types of information most effective in influencing controllers of the labor market to increase employment opportunities to the severely handicapped.

(4) Identify specific attitudes that discourage employment of the handicapped; determine the pervasiveness and seriousness of these attitudes; develop attitude change strategies keyed to each type of attitude.

(5) Determine the effects of various kinds of contact between the handicapped and nonhandicapped; use the results to develop models for successful integration of the handicapped into the schools and the work force.

4.2 Assessing aptitude, interest, and placement readiness

(1) Determine the adequacy of existing instruments for assessing the vocational potential of the severely handicapped.

(2) Determine the adequacy of existing instruments for assessing self-care and interpersonal skills of the severely handicapped

(3) Determine how well existing procedures predict job performance where such data do not now exist.

(4) Develop instruments that accurately predict the success of severely handicapped persons in various careers. These instruments should predict success while manipulating various methods of overcoming barriers faced by the handicapped.

(5) Identify exemplary practices in the use of assessment procedures in helping the severely handicapped to select satisfactory careers; disseminate information about such practices.

(6) Determine the skills that are best learned in a training setting, skills that are best learned on the job, and the optimal point for transferring from a training setting to a job.

4.3 Finding jobs and opening new employment opportunities

(1) Determine employers' greatest concerns about the feasibility of hiring the handicapped; identify information that can overcome such concerns; assist local programs in disseminating such information.

(2) Determine the most effective procedures for bringing together handicapped job candidates and potential employers; assist local programs in implementing such procedures.

(3) Determine the incentives and support services most effective in encouraging employers to hire handicapped workers.

(4) Investigate the feasibility of providing sheltered work in primarily unsheltered settings; conduct pilot projects to determine if such an approach can work.

4.4 Modifying the job or work environment to accommodate the handicapped worker

(1) Develop task analysis procedures to identify those aspects of the job or work environment most likely to cause problems for the handicapped worker; develop guides for conducting such a task analysis.

(2) Develop procedures for job redesign that cause minimal disruption of established routine, that preserve the basic nature of the job, and that do not place undue burdens on nonhandicapped workers; present these procedures in a guide designed for practitioners.

(3) Develop guides that show how to identify the specific activities within a task that make the task too difficult for handicapped workers. The guide should provide suggestions on how to alter or eliminate activities so that handicapped workers can do the tasks.

Socioemotional Adjustment

5.1 Developing self-esteem, accurate self-appraisal, and realistic vocational and career aspirations

(1) Determine the antecedents of self-esteem and the effectr of self-esteem on vocational performance, quality of life, and personal satisfaction of severely handicapped persons. What interventions can prevent development of low self-esteem? What interventions can arrest the development of low self-esteem?

(2) Develop instruments that assess the level of self-esteem of the handicapped person and its probable impact on job performance.

(3) Develop or adapt guidance models designed to enable severely handicapped persons to improve their skill in applying accurate self-appraisal to career decision making.

(4) Conduct longitudinal studies to gain greater understanding of the development of levels of aspiration by the severely handicapped.

(5) Identify and disseminate effective programming models for developing realistic career aspiratons for severely handicapped persons.

5.2 Developing basic social skills required for working with others

(1) Conduct long-term basic research into the social and emotional development of severely handicapped persons. This research should be designed to obtain greater understanding of the effects of the handicapping condition upon socialization.

(2) Identify and disseminate information about effective practices and procedures that help integrate severely handicapped persons into normal competitive work. Identify effective methods of encouraging instructors, employers, and nonhandicapped co-workers to accept working with severely handicapped persons.

5.3 Coping with the realistic needs for assistance and dependence on significant others and society

(1) Clarify what contributes healthy dependence upon others for the severely handicapped to achieve vocational success and a better quality of life.

(2) Identify useful roles parents and family members can play in the habilitation and rehabilitation of the severely handicapped. The concern should not be with establishing responsibilities but with identifying types of involvements that will lead to effective socialization of handicapped persons.

Physical Accommodation

6.1 Increasing the availability of assistive devices

(1) Develop a centralized, computer-based system containing frequently updated information about the availability and capabilities of specialized aids and devices. Make the system widely accessible through the use of remote terminals.

(2) Encourage sophisticated appraisal of the relationship between user capabilities and environmental demands in the selection and fitting of assistive devices.

(3) Develop more sophisticated procedures for determining the probable benefit of an aid to a given individual. Such procedures would consider the entire worker-environment-aid system in making predictions, rather than focusing only on the severity of the handicap. More attention should be given to the context in which a device is to be used than is typical, and predictions should consider probable improvements in functioning for a given client.

(4) Conduct cost analyses of various procedures for providing aids; conduct limited tryouts of procedures and disseminate information about those that are most effective and economical.

6.2 Increasing the accessibility of public transportation vehicles, stations, and associated facilities that are often difficult or impossible for physically handicapped people to use

(1) Identify and disseminate information about effective methods of training severely handicapped persons to use available local transportation.

(2) Obtain more information about the advantages and disadvantages of vocational training and employment for the homebound. To what extent is this feasible? Effective practices need to be identified and disseminated.

(3) Develop transportation services accessible to the handicapped and disseminate information about them. What can training programs do to overcome transportation barriers? What can employers do? What can handicapped persons and their families do?

6.3 Designing housing and working areas specifically for the needs of handicapped persons

(1) Identify and disseminate information about the design of optimal physical environments in which to train the severely handicapped, as well as about designs that improve living conditions and general quality of life.

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